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Water Resources Data for Iowa

Part 1. Surface Water Records

Part 2. Water Quality Records

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the Iowa Geological Survey
and with other State and Federal agencies

CALENDAR FOR WATER YEAR 1971

OCTOBER 1970

S	M	T	W	T	F	S
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JANUARY 1971

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31						

FEBRUARY 1971

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MARCH 1971

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APRIL 1971

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MAY 1971

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JUNE 1971

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JULY 1971

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AUGUST 1971

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SEPTEMBER 1971

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1971

Water Resources Data for Iowa

Part 1. Surface Water Records

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the Iowa Geological Survey
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Prepared in cooperation with

Iowa Geological Survey
Iowa State Highway Commission
Iowa Natural Resources Council
University of Iowa, Institute of Hydraulic Research
Iowa State University, Agricultural Experiment Station
Iowa State Conservation Commission
Iowa State University
Linn County
City of Cedar Rapids
City of Fort Dodge
Corps of Engineers, U.S. Army
Environmental Protection Agency

Copies of this report may be obtained from
District Chief, Water Resources Division
U.S. Geological Survey
1041 Arthur Street
Iowa City, Iowa 52240

April 1972

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(Letters after station name designate type of data: c, chemical; t, water temperature; s, sediment)

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WATER RESOURCES DATA FOR IOWA, 1971

Part 1. Surface-Water Records
Part 2. Water-Quality Records

INTRODUCTION

Water resources data for the 1971 water year for Iowa including records of streamflow or reservoir storage at gaging stations, partial-record stations, and miscellaneous sites, and records of water-quality data on the chemical and physical characteristics of surface and ground water, are given in this report. In Part 1, records are included for 130 gaging stations of which 119 are streamflow discharge stations, and 11 are reservoir or lake stations; also included are records for 380 low-flow partial-record stations, 126 crest-stage partial-record stations, and 49 miscellaneous sites. Locations of gaging stations are shown in Figure 2. In Part 2, data on the quality of surface water (chemical, temperature, and sediment) were collected from designated sampling sites at predetermined intervals such as once daily, weekly, monthly, or less frequently. Records are given for 488 sampling stations of which 22 are continuous record stations, 81 are partial-record stations, and 385 are miscellaneous sites. Locations of water-quality stations are shown in Figure 3. The records were collected and computed by the Water Resources Division of the U.S. Geological Survey under the direction of S. W. Wiitala, district chief. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Iowa.

Beginning with the 1961 water year, streamflow records and related data have been released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records beginning with the 1964 water year have been similarly released either in separate reports or in conjunction with streamflow records. These reports are for limited distribution and are designed primarily for rapid release of data shortly after the end of the water year.

Records of discharge and stage of streams, and contents and stage of lakes and reservoirs are published in a series of U.S. Geological Survey water-supply papers entitled, "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and since then are in a 5-year series. Records of chemical quality, water temperatures, and suspended sediment have been published since 1941 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." More information is given under the headings "Publications" on pages 18 and 19.

COOPERATION

The U.S. Geological Survey and organizations of the State of Iowa have had cooperative agreements for the systematic collection of streamflow records since 1914, and for water-quality records since 1943. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Iowa Geological Survey, Samuel J. Tuthill, director and State Geologist

University of Iowa Institute of Hydraulic Research, Hunter Rouse, dean of College of Engineering, and J. F. Kennedy, director

Iowa State Conservation Commission, F. A. Priewert, director

Iowa State Highway Commission, Joseph Coupal, Jr., director of highways and S. E. Roberts, director of research

Iowa Natural Resources Council, O. R. McMurry, director

Iowa State University, Richard E. Hasbrook, contracts and grants officer, and Agricultural Experiment Station, George T. Browning, associate director

Linn County, W. G. Harrington, county engineer

City of Cedar Rapids, Donald Canney, mayor

City of Fort Dodge, Vincent B. Gardner, manager, department of municipal utilities

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 62 gaging stations, and by the Environmental Protection Agency, U.S. Department of the Interior, in collecting records for six water-quality stations published in this report. Assistance was also furnished by the Environmental Science Services Administration of the U.S. Department of Commerce.

The following organizations aided in collecting records:

Union Electric Co.; Des Moines Water Works; Ottumwa Water Works; Waterloo Sewage Treatment Plant; University of Iowa; and cities of Ames, Charles City, Council Bluffs, Des Moines, Iowa City, Marshalltown, Rock Rapids, Sioux City, and Waterloo.

DEFINITION OF TERMS

Terms related to streamflow, water-quality and other hydrologic data, as used in this report, are defined as follows:

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons.

Bed material is the shifting portion of fragmented material of which the streambed is composed.

Biochemical oxygen demand (BOD) is the amount of oxygen required by bacteria while stabilizing decomposable organic matter under aerobic conditions.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, or about 646,000 gallons, and represents a runoff of approximately 0.0372 inch from 1 square mile.

Chemical oxygen demand (COD) indicates the quantity of oxidizable compounds in water and varies with water composition(s), temperature, period of contact, and other factors.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate or delayed incubation membrane filter method.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (cfs) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute.

Discharge is the volume of water (or more broadly, total fluids), that passes a given point within a given period of time.

Mean discharge is the arithmetic average of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time. If this discharge is reported instead of the daily mean, the heading of the discharge column in the tables is "Discharge (cfs)."

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is computed.

Hardness of water is a physical-chemical characteristic attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per liter (ug/l, UG/L) is a unit expressing the concentration of chemical constituents in solution as the weight (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (mg/l, MG/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the weight of solute per unit volume of water. Milligrams or micrograms per liter may be converted to milliequivalents (one thousandth of a gram-equivalent weight of a constituent) per liter by multiplying by the factors in table 1, page 6. Concentration of suspended sediment also is expressed in mg/l, and is based on the weight of sediment per liter of water-sediment mixture. Sediment concentrations may be converted to parts per million by using the factors in table 2, p. 7.

Partial-record station is a particular site where limited streamflow or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling) (Guy, 1969).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

The particle-size distribution given in this report is not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis (Guy, 1969).

Table 1.--Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter

Ion	Multiply by	Ion	Multiply by
Aluminum (Al^{+3})*....	0.11119	Iodide (I^{-1}).....	0.00788
Ammonia as NH_4^{+1}....	.05544	Iron (Fe^{+3})*.....	.05372
Barium (Ba^{+2}).....	.01456	Lead (Pb^{+2})*.....	.00965
Bicarbonate (HCO_3^{-1})	.01639	Lithium (Li^{+1})*...	.14411
Bromide (Br^{-1}).....	.01251	Magnesium (Mg^{+2})..	.08226
Calcium (Ca^{+2}).....	.04990	Manganese (Mn^{+2})*.	.03640
Carbonate (CO_3^{-2})...	.03333	Nickel (Ni^{+2})*....	.03406
Chloride (Cl^{-1}).....	.02821	Nitrate (NO_3^{-1})...	.01613
Chromium (Cr^{+6})*....	.11539	Nitrite (NO_2^{-1})...	.02174
Cobalt (Co^{+2})*.....	.03394	Phosphate (PO_4^{-3}).	.03159
Copper (Cu^{+2})*.....	.03148	Potassium (K^{+1})...	.02557
Cyanide (CN^{-1})	.03844	Sodium (Na^{+1}).....	.04350
Fluoride (F^{-1}).....	.05264	Strontium (Sr^{+2})*.	.02283
Hydrogen (H^{+1}).....	.99209	Sulfate (SO_4^{-2})...	.02082
Hydroxide (OH^{-1})....	.05880	Zinc (Zn^{+2})*.....	.03060

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Table 2.--Factors for conversion of sediment concentration in milligrams per liter to parts per million*
(All values calculated to three significant figures)

Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05- 24	1.01	218-232	1.14	427-440	1.27	636-650	1.40
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-506	1.31	700-715	1.44
88.5 -104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 -120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 -136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 -152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 -169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 -185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 -200	1.12	395-409	1.25	604-617	1.38		

*Based on water density of 1.000 g/ml and a specific gravity of sediment of 2.65.

Plankton is the floating (or weakly swimming) animal or plant life in a body of water consisting chiefly of minute plants (as diatoms and blue-green algae) and of minute animals (as protozoan, entomostracans, and various larvae).

Runoff in inches (IN.) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time. It is computed by multiplying discharge times mg/l times 0.0027.

Total sediment discharge or total sediment load is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that is discharged during a given time (Colby and Hembree, 1955).

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/l).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. This ratio should be known especially for water used for irrigating farmland.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimeter at 25°C. Because the specific conductance is related to the number and specific chemical types of ions in solution, it can be used for approximating the dissolved-solids content in the water. Commonly, the amount of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream or from well to well, and it may even vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height and the volume of water per unit of time, flowing in a channel.

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that automatically records water temperatures on paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the water year.

Tons per acre-foot indicates the dry weight of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the summary REVISIONS paragraph to refer to previously published State annual basic-data reports.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

International Hydrologic Decade (IHD) River Stations provide a general index of runoff and materials in the water balance (discharge of water, and dissolved and transported solids) of the world. In the United States, IHD Stations provide indices of runoff and of the general distribution of water in the principal river basins of the conterminous United States and Alaska.

Irrigation network stations are water-quality stations located at or near certain streamflow gaging stations west of the main stem of the Mississippi River. Data collected at these stations are used to evaluate the chemical quality of surface waters used for irrigation and the changes resulting from the drainage of irrigated lands. Prior to water year 1966, the data for these stations were published in the annual water-supply paper series, "Quality of Surface Water for Irrigation, Western States."

Pesticide program is a network of regularly sampled water-quality stations where additional monthly samples are collected to determine the concentration and distribution of pesticides in streams whose waters are used for irrigation or in streams in areas where potential contamination could result from the application of the commonly used insecticides and herbicides.

Radiochemical program is a network of regularly sampled water quality stations where additional samples are collected twice a year (at high and low flow) to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

DOWNSTREAM ORDER AND STATION NUMBER

Stations are listed in a downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all main-stream stations are listed before the first main-stream station. Stations on tributaries to tributaries are listed in a similar manner. In the lists of gaging stations and water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identification, each gaging station, partial-record station, and water-quality station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and gaging stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 05387500, which appears just to the left of the station name includes the 2-digit part number "05" plus the 6-digit downstream order number "387500." In this report, the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. Records in this report are in Part 5 (Upper Mississippi River basin) and Part 6 (Missouri River basin). All records for a drainage basin encompassing more than one State can be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

SURFACE WATER RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at 5-, 15-, or 60-minute intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey on the basis of experience in stream gaging since 1888. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of the gage-height record and occasional winter discharge measurements, consideration being given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, adjoining good record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated on the basis of operator's log, adjoining good record, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30. A calendar for the current water year is shown on the reverse side of the front cover to facilitate finding the day of the week for any date.

The description of the gaging stations gives the location, drainage area, period of record, type and history of gages, average discharge, extremes of discharge or contents, general remarks, and notations of revisions of previously published records. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD." The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified. The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE;" it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. The maximum discharge (or contents) and the maximum gage height, the minimum daily discharge (or minimum contents) and the minimum gage height if it is significant are given under "EXTREMES." In the

first paragraph headed "Current year," the data given are for the complete current water year unless otherwise specified. In the second paragraph under "EXTREMES" headed "Period of record:" the data given are for the period of record given in PERIOD OF RECORD paragraph. Reliable information concerning major floods that occurred outside the period of record is given in the third or last paragraph under "EXTREMES." Unless otherwise qualified, the maximum discharge (or contents) corresponds to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur at the same time as the maximum discharge (or contents), it is given separately. Information pertaining to the accuracy of the discharge records, to conditions that affect the natural flow at the gaging station, and availability of Water Quality records, is given under "REMARKS;" for reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir, is also given under "REMARKS."

Previously published records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISIONS (WATER YEARS)" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge were revised, that fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised

figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

Skeleton rating tables are published for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

Skeleton capacity tables are published for all reservoirs for which records of contents are published on a daily basis.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches.

In the yearly summary below the monthly summary, the figures following "MAX" are the maximum daily discharges for the calendar and water years; likewise, those following "MIN" are the minimum daily discharges.

Footnotes to the table of daily discharges are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they

are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

Peak discharges and their times of occurrence and corresponding gage heights for many stations are listed below the yearly summary. All independent peaks above the selected base are given. The base discharge, which is given in parentheses, is selected so that an average of about three peaks a year can be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subjected to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations and miscellaneous sites are given in four tables at the end of the surface-water records in this report. The first is a table of discharge measurements at low-flow partial-record stations, the second is a table of annual maximum stage and discharge at crest-stage stations, the third is a table of discharge measurements at miscellaneous sites, and the fourth is a table of supplemental low-flow measurements made during periods of low flow.

Accuracy of data

The accuracy of discharge data depends primarily on (1) the stability of the stage-discharge relation, or if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretation of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good" within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Publications

In each water-supply paper entitled, "Surface Water Supply of the United States" there is a list of numbers of preceding water-supply papers containing streamflow information for the area covered by that report. In addition, there is a list of numbers of water-supply papers containing detailed information on major floods in the area. Records for stations in Iowa for the period October 1960 to September 1965 are in Water-Supply Papers 1914, 1915, 1917, 1918, and 1919.

Two series of summary reports entitled, "Compilation of Records of Surface Waters of the United States" have been published; the first series covers the entire period of record through September 1950 and the second series covers the period October 1950 to September 1960. These reports contain summaries of monthly and annual discharge and month-end storage for all previously published records, as well as some records not contained in the annual series of water-supply papers. All records were reexamined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical. The yearly summary table for each gaging station lists the numbers of the water-supply papers in which daily records were published for that station. Records for stations in Iowa are compiled in Water-Supply Papers 1308, 1309, and 1310 through September 1950, and in 1728, 1729, and 1730 for October 1950 to September 1960.

Special reports on major floods or droughts or of other hydrologic studies for the area have been issued in publications other than water-supply papers. Information relative to these reports may be obtained from the district office.

Other data available

Information of a more detailed nature than that published for most of the gaging stations, such as discharge measurements, gage-height records, and rating tables, is on file in the district office. Also, most gaging-station records are available in computer-usable form and many statistical analyses have been made.

WATER QUALITY RECORDS

Collection and examination of data

Water samples for analyses usually are collected at or near gaging stations. The discharge records at these stations are used in conjunction with the computations of the chemical constituents and sediment loads in this report.

Descriptive statements are given for water-quality stations located at or near streamflow stations. Given are location, drainage area, periods of record for the various water-quality data, extremes of pertinent data, and general remarks, in a format similar to that used for streamflow gaging stations.

Water-quality information is presented for chemical quality, biological, microbiological, water temperature, and fluvial sediment. Chemical quality includes concentrations of individual dissolved constituents and certain properties or characteristics such as hardness, sodium adsorption ratio, specific conductance, and pH. The biological information includes qualitative and quantitative analyses of plankton, bottom organisms, and particulate inorganic and amorphous matter present. Microbiological information includes quantitative identification of certain bacteriological indicator organisms. Water-temperature data represent once-daily observations except for stations where a continuous temperature recorder furnished information from which daily minimums and maximums are obtained. Fluvial-sediment information is given for suspended-sediment discharges and concentrations and for particle-size distribution of suspended sediment and bed material.

Prior to 1968 water year, data for chemical constituents and concentration of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967 the U.S. Geological Survey began to use the metric system; data for chemical constituents and concentrations of suspended sediment are now reported in milligrams per liter (mg/l) and water temperatures are given in degrees Celsius (centigrade, °C). In waters with a density of 1.000 g/ml (grams per milliliter), parts per million and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per liter. To convert temperatures in degrees Celsius to degrees Fahrenheit, see table 3 on the next page.

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. (See "Definiton of Terms," p. 5).

Table 3.--Degrees Celsius (°C) to degrees Fahrenheit (°F)*
(Temperature reported to nearest 0.5°C)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
2.5	36	12.5	54	22.5	72	32.5	90	42.5	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	75	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
7.5	45	17.5	63	27.5	81	37.5	99	47.5	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

*C = 5/9 (°F - 32) or °F = 9/5 (°C) + 32

Solutes

The methods of collecting and analyzing water samples for determining the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman (1970). One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross-section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled at several verticals across the channel to determine accurately the solute load.

Temperature

Water temperatures are measured at most of the water-quality stations. For daily stations, the water temperatures are taken about the same time each day when the sample is collected. Large streams have a small diurnal temperature change while small, shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where continuously recording thermographs are present, the records consist of maximum and minimum temperatures for each day and the monthly averages.

Water temperature is usually measured at gaging stations when the discharge is measured. Although these temperatures are usually measured monthly and on different days of the month,an analysis of these data for each month for a long period of record will indicate significant thermal characteristics of the stream. Data have been analyzed for the period of record for gaging stations with 10 or more years of record. A summary is published in the 1969 report of this series in the table entitled "Extremes and Mean Periodic Water Temperature" which shows the maximum, minimum, and mean water temperature for each month.

Sediment

Suspended-sediment concentrations are determined from samples collected using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the

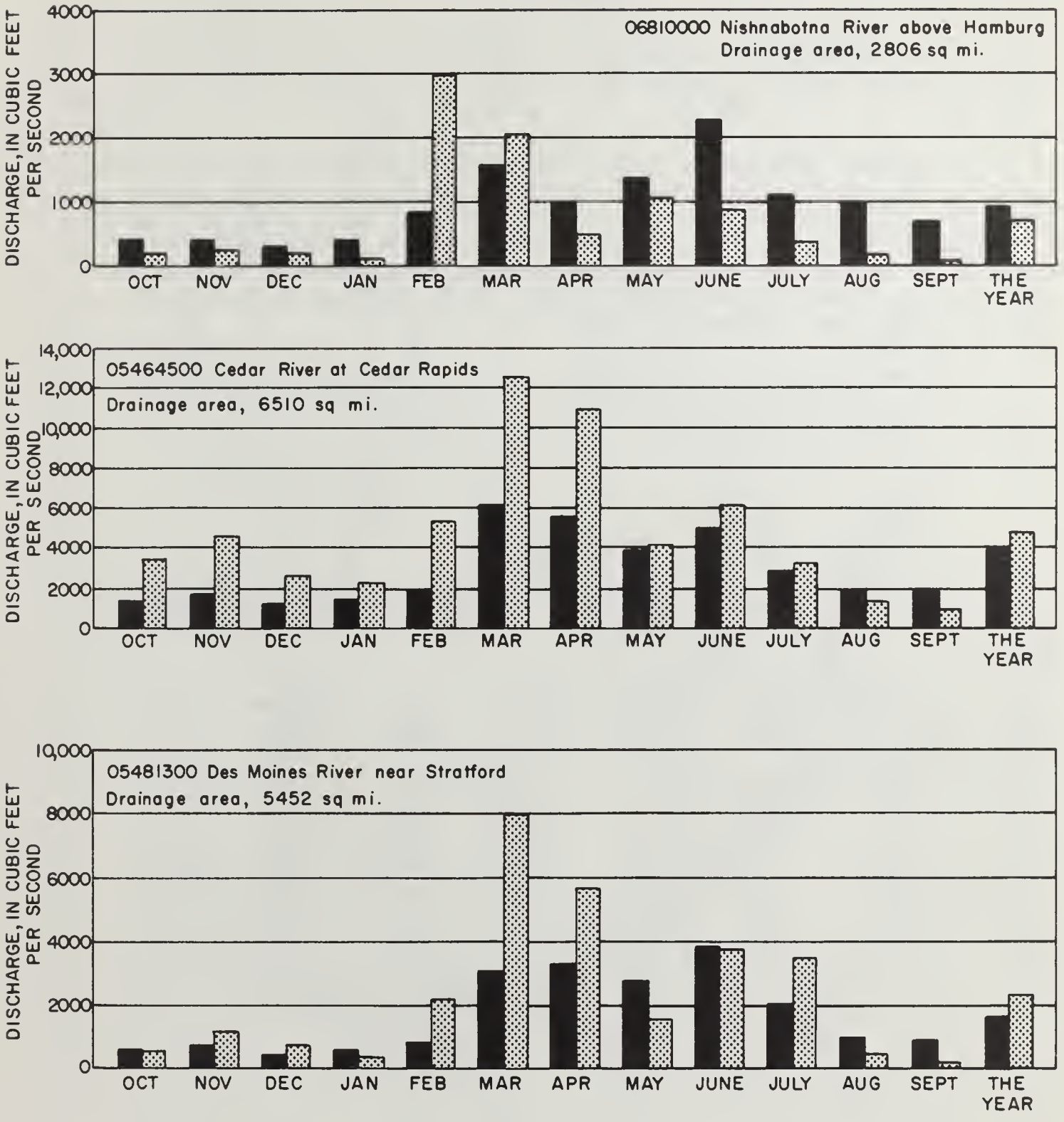

FIGURE 1.--RUNOFF DURING 1971 WATER YEAR COMPARED WITH MEAN RUNOFF FOR PERIOD 1931-60 FOR THREE REPRESENTATIVE GAGING STATIONS

subdivided day method. For periods when no samples are collected, daily loads of suspended sediment are estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples are collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Publications

The annual series of water-supply papers that contain information on quality of surface waters in Iowa are listed below.

Water year	WSP No.	Water year	WSP No.	Water year	WSP No.	Water year	WSP No.
1941	942	1948	1132	1955	1401	1962	1943
1942	950	1949	1162	1956	1451	1963	1949
1943	970	1950	1187	1957	1521	1964	1956
1944	1022	1951	1198	1958	1572	1965	1963
1945	1030	1952	1251	1959	1643	1966	1993
1946	1050	1953	1291	1960	1743	1967	2013
1947	1102	1954	1351	1961	1883		

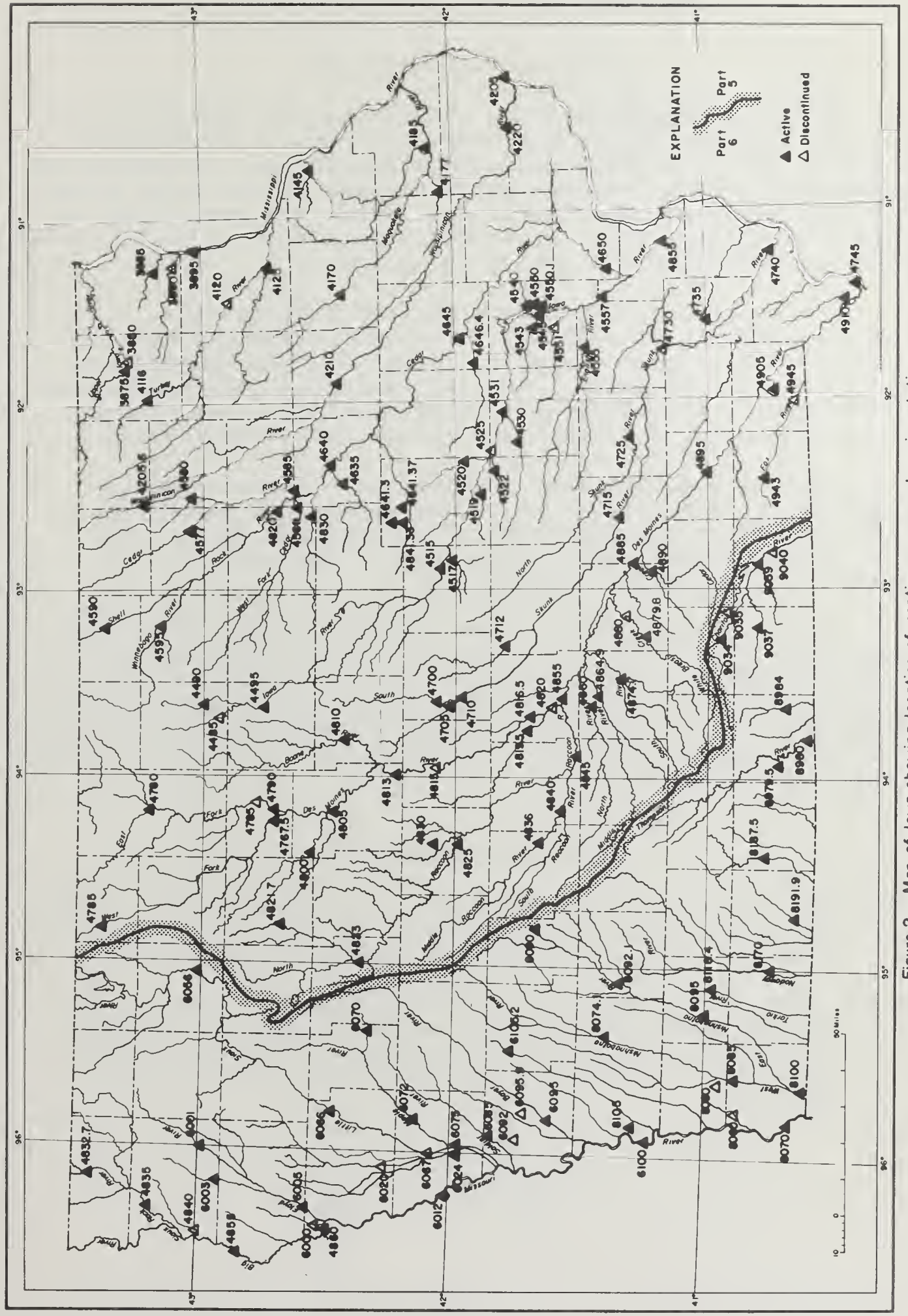

Figure 2.--Map of Iowa showing location of continuous-record gaging stations.

HYDROLOGIC CONDITIONS

Annual runoff during the 1971 water year was generally normal--2 inches in the northwestern part of the state to 8 inches in the eastern part. Northeast Iowa, including the Wapsipinicon River and the upper reaches of the Cedar River drainage systems, experienced nearly all the exceptions to this generality. These areas had a runoff of 10 to 15 inches compared to the normal of 5 to 8 inches.

The water year began with excessive streamflow in the eastern and central parts of the state, normal streamflow in the northern part and below normal in the southwestern and south central parts. Streamflow slowly declined during the following three months although the snow cover accumulated from heavy snowfalls and bitter cold temperatures.

Warming temperatures, snowmelt and rainfall caused moderate flooding and above normal streamflow during the period February through April. Fortunately, these conditions were intermittent during these three months which reduced the potential flood hazard.

The remainder of the water year experienced a gradual decline in streamflow to below normal conditions during the period August through September. A serious drought was predicted when the month of June experienced the highest air temperatures since 1934. The drought potential moderated considerably because of very cool temperatures during the months of July and August.

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American Public Health Association, and others, 1971, Standard methods for the examination of water and wastewater, 13th ed.: Am. Public Health Assoc., New York, 874 p.

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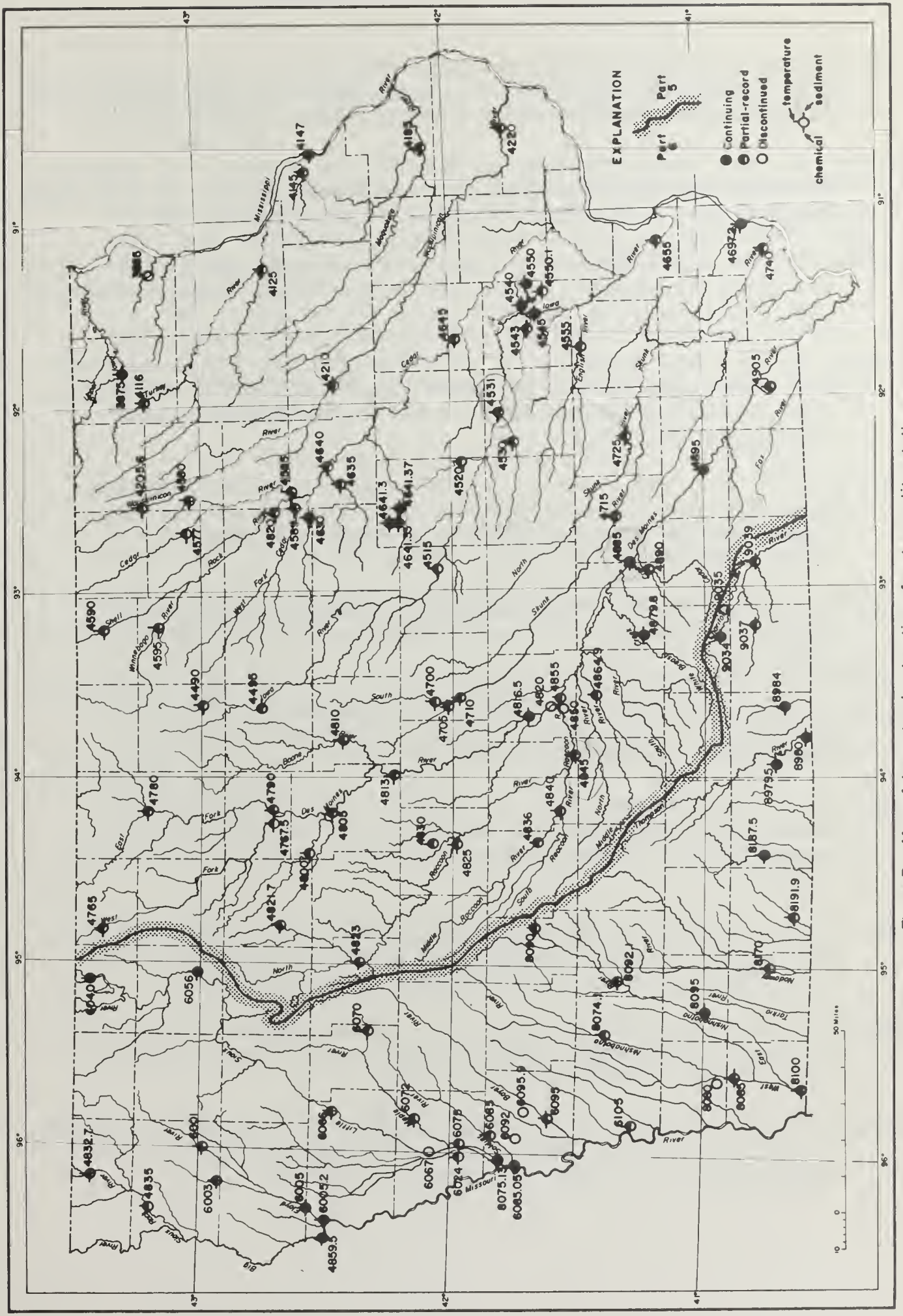

Figure 3.--Map of Iowa showing location of water-quality stations.

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PART 1. SURFACE WATER RECORDS

05387500 UPPER IOWA RIVER AT DECORAH, IOWA

LOCATION.--Lat 43°18'19", long 91°47'48", in NE1/4 SW1/4 sec.16, T.98 N., R.8 W., Winneshiek County, on right bank 1,200 ft upstream from bridge on U.S. Highway 52 (city route) in Decorah, 1,500 ft downstream from Dry Run cutoff, and 3.0 miles upstream from Trout Run.
DRAINAGE AREA.--511 sq mi.
PERIOD OF RECORD.--August 1951 to current year.
GAGE.--Water-stage recorder. Datum of gage is 850.00 ft above mean sea level.
AVERAGE DISCHARGE.--20 years, 274 cfs (7.28 inches per year, 198,500 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 8,440 cfs Apr. 1 (gage height, 9.47 ft); minimum daily, 85 cfs Sept. 17, 18.
Period of record: Maximum discharge, 20,200 cfs Mar. 27, 1961 (gage height, 13.08 ft); minimum daily 22 cfs Feb. 2-7, 1959.
Maximum flood known, probably since at least 1913, occurred May 29, 1941, at site of former gaging station near Decorah, 4 miles downstream (discharge, 28,500 cfs).
REMARKS.--Records good except those for winter period, which are fair. Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Dec. 12, 13, Dec. 21 to Mar. 11, Mar. 15, 16).

3.9	77	5.0	570	8.0	4,580
4.1	140	6.0	1,380	9.0	7,040
4.5	305	7.0	2,720	10.0	10,200

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160	519	419	200	130	390	7,300	451	362	242	132	93
2	154	486	398	200	120	360	4,180	450	345	227	128	91
3	144	474	398	190	115	330	1,970	435	334	216	123	89
4	138	560	392	150	115	320	1,520	435	325	220	124	90
5	137	650	363	170	115	310	1,410	438	316	218	121	94
6	134	555	255	170	120	300	1,410	409	309	216	119	95
7	131	472	288	150	140	290	1,460	387	692	210	119	94
8	156	426	362	130	135	280	1,540	370	532	202	117	91
9	422	467	337	120	135	290	1,530	355	498	195	121	90
10	2,120	609	275	110	110	300	1,330	343	428	193	119	92
11	1,190	793	195	105	110	310	1,140	355	387	193	114	94
12	665	621	280	105	110	321	1,040	343	355	204	111	96
13	534	549	300	105	110	334	960	328	506	236	108	96
14	474	502	251	105	110	1,410	856	318	346	191	107	92
15	416	476	273	110	110	2,400	777	309	318	178	105	88
16	372	444	305	100	115	2,650	714	303	304	170	105	86
17	338	418	298	100	115	2,260	672	300	293	163	102	85
18	316	401	293	105	120	2,220	624	352	278	160	99	85
19	298	413	269	105	150	1,900	618	477	287	164	104	94
20	283	589	208	110	340	1,500	600	515	356	169	104	97
21	270	794	180	115	400	1,320	624	485	280	159	104	95
22	260	858	230	115	365	1,140	651	422	289	148	113	94
23	254	669	250	115	330	964	644	399	290	151	103	94
24	273	424	200	115	315	859	576	507	306	148	102	93
25	264	525	190	115	310	787	522	484	495	169	99	94
26	272	565	190	120	330	716	486	476	515	156	97	97
27	421	472	190	125	410	702	473	441	466	143	97	97
28	859	422	190	130	400	1,030	474	408	331	150	97	96
29	882	411	180	135	------	1,670	456	383	276	146	95	93
30	624	398	170	135	------	2,530	442	362	262	143	93	93
31	543	------	180	135	------	5,080	------	355	------	137	92	------
TOTAL	13,504	15,962	8,309	3,995	5,485	35,273	36,999	12,395	11,081	5,617	3,374	2,778
MEAN	436	532	268	129	196	1,138	1,233	400	369	181	109	92.6
MAX	2,120	858	419	200	410	5,080	7,300	515	692	242	132	97
MIN	131	398	170	100	110	280	442	300	262	137	92	85
CFSM	.85	1.04	.52	.25	.38	2.23	2.41	.78	.72	.35	.21	.18
IN.	.98	1.16	.60	.29	.40	2.57	2.69	.90	.81	.41	.25	.20
AC-FT	26,790	31,660	16,480	7,920	10,880	69,960	73,390	24,590	21,980	11,140	6,690	5,510

CAL YR 1970 TOTAL 98,820 MEAN 271 MAX 2,120 MIN 69 CFSM .53 IN 7.19 AC-FT 196,000
WTR YR 1971 TOTAL 154,772 MEAN 424 MAX 7,300 MIN 85 CFSM .83 IN 11.27 AC-FT 307,000

PEAK DISCHARGE (BASE, 4,000 CFS).--Apr. 1 (0345) 8,440 cfs (9.47 ft).

05388500 PAINT CREEK AT WATERVILLE, IOWA

LOCATION.--Lat 43°12'37", long 91°18'21", in NW1/4 NW1/4 sec.22, T.97 N., R.4 W., Alamakee County, on right bank 100 ft downstream from bridge on county highway X32, 0.5 mile northwest of Waterville and 10 miles upstream from mouth.
DRAINAGE AREA.--42.8 sq mi.
PERIOD OF RECORD.--October 1952 to current year. Monthly discharge only for some periods, published in WSP 1728.
GAGE.--Water-stage recorder.
AVERAGE DISCHARGE.--19 years, 14.3 cfs (4.54 inches per year, 10,360 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,130 cfs June 24 (gage height, 6.27 ft); minimum daily, 4.5 cfs Jan. 7.
Period of record: Maximum discharge, 5,010 cfs July 29, 1970 (gage height, 10.31 ft); minimum daily, 1.1 cfs for several days in August and September 1958.
Flood in August 1951 reached a stage of 17.35 ft, from information by local resident on floodmarks in vicinity of gage (discharge, 9,100 cfs, computed by unit-runoff studies based on contracted-opening measurement of peak flow at station 05388600). A higher stage may have occurred during the spring of 1949.
REMARKS.--Records good except those for winter period, which are fair.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Jan. 6-9).

2.8	3.1	3.2	15	4.2	155
2.9	5.0	3.5	35	4.5	250
3.0	7.5	3.8	72	4.7	340

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	7.5	11	6.1	5.2	18	185	21	22	21	9.7	7.2
2	5.8	7.0	9.7	6.3	4.9	15	78	19	20	18	9.4	7.3
3	5.2	7.8	9.9	6.9	5.3	13	59	18	19	17	9.3	7.0
4	5.3	7.7	9.9	7.3	5.7	12	50	22	18	18	8.9	7.4
5	5.6	7.1	8.3	5.8	6.1	13	48	22	17	18	9.0	8.6
6	5.7	7.1	7.1	4.9	5.4	14	49	18	17	17	9.0	7.2
7	5.7	6.7	8.9	4.5	5.0	12	54	17	32	16	8.9	6.8
8	6.2	6.4	9.3	5.2	5.3	10	56	17	20	16	8.8	7.1
9	9.1	7.9	9.6	5.9	5.3	8.9	51	16	17	16	9.1	7.3
10	7.6	9.8	9.4	6.8	5.3	9.9	41	15	16	16	9.5	9.2
11	5.8	7.7	7.5	6.6	5.3	11	38	16	15	16	9.4	7.1
12	5.7	7.6	9.7	6.2	5.0	10	54	15	15	139	8.6	7.0
13	5.6	7.5	9.9	6.7	4.8	13	48	15	37	29	8.4	6.8
14	5.4	7.3	8.7	6.5	5.0	161	37	15	16	18	8.5	6.9
15	5.0	7.1	8.0	6.0	4.9	129	34	14	15	17	8.3	6.7
16	4.9	6.9	8.7	6.1	4.9	59	32	14	14	16	8.0	6.6
17	5.0	7.4	9.2	6.2	5.1	47	31	14	13	15	7.9	6.8
18	4.9	7.3	9.1	6.0	7.7	53	28	62	13	15	7.8	6.8
19	4.7	7.8	8.8	5.7	12	43	28	80	21	14	8.3	8.2
20	4.8	13	7.0	6.2	51	37	27	24	124	14	8.5	8.4
21	4.9	9.7	6.6	6.3	32	34	30	21	25	14	8.2	7.4
22	5.1	8.1	7.2	6.2	18	30	26	19	22	13	9.0	7.2
23	5.1	6.9	7.1	6.1	14	27	24	20	21	13	7.8	7.4
24	7.3	8.6	7.9	6.0	16	25	23	61	82	13	7.9	7.2
25	7.3	9.3	6.9	5.9	14	24	22	28	72	13	7.5	8.1
26	5.4	9.7	7.0	5.5	15	23	21	25	25	12	7.5	9.0
27	11	8.6	6.7	5.1	23	27	24	24	22	12	7.5	8.0
28	14	8.8	6.1	5.2	20	55	24	22	20	14	7.3	7.8
29	9.1	9.8	5.6	6.0	------	62	21	21	22	11	7.1	9.0
30	9.5	9.9	5.6	5.7	------	81	21	20	27	10	6.9	14
31	8.9	------	5.9	5.4	------	328	------	20	------	10	7.1	------
TOTAL	201.3	244.0	252.3	185.3	311.2	1,404.8	1,264	735	819	601	259.1	231.5
MEAN	6.49	8.13	8.14	5.98	11.1	45.3	42.1	23.7	27.3	19.4	8.36	7.72
MAX	14	13	11	7.3	51	328	185	80	124	139	9.7	14
MIN	4.7	6.4	5.6	4.5	4.8	8.9	21	14	13	10	6.9	6.6
CFSM	.15	.19	.19	.14	.26	1.06	.98	.55	.64	.45	.20	.18
IN.	.17	.21	.22	.16	.27	1.22	1.10	.64	.71	.52	.23	.20
AC-FT	399	484	500	368	617	2,790	2,510	1,460	1,620	1,190	514	459

CAL YR 1970 TOTAL 4,266.2 MEAN 11.7 MAX 1,110 MIN 3.2 CFSM .27 IN 3.71 AC-FT 8,460
WTR YR 1971 TOTAL 6,508.5 MEAN 17.8 MAX 328 MIN 4.5 CFSM .42 IN 5.66 AC-FT 12,910

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
3-31	1915	5.76	924	6-24	2000	6.27	1,130
5-18	2130	5.22	594	7-12	1730	5.36	726
6-20	0415	5.03	528				

05389500 MISSISSIPPI RIVER AT MCGREGOR, IOWA

LOCATION.--Lat 43°01'29", long 91°10'21", in SE1/4 SE1/4 sec.22, T.95 N., R.3 W., Clayton County, on right bank in city park at east end of Main Street in McGregor, 2.6 miles upstream from Wisconsin River, 4.3 miles downstream from Yellow River, and at mile 633.4 upstream from Ohio River.
DRAINAGE AREA.--67,500 sq mi, approximately.
PERIOD OF RECORD.--August 1936 to current year.
GAGE.--Water-stage recorder. Datum of gage is 605.30 ft above mean sea level, adjustment of 1912. Prior to June 1, 1937, and since June 2, 1939, auxiliary water-stage recorder; June 1, 1937 to June 1, 1939, auxiliary nonrecording gage 14.1 miles upstream in tailwater of dam 9, at datum 5.30 ft lower.
AVERAGE DISCHARGE.--35 years, 32,710 cfs (6.58 inches per year, 23,700,000 acre-ft per year).
EXTREMES.--Current year: Maximum daily discharge, 138,000 cfs Apr. 20; maximum gage height, 17.67 ft Apr. 19; minimum daily discharge, 10,400 cfs Sept. 23; minimum gage height, 5.93 ft Sept. 1.
Period of record: Maximum daily discharge, 276,000 cfs Apr. 24, 1965; maximum gage height, 25.38 ft Apr. 24, 1965; minimum daily discharge, 6,200 cfs Dec. 9, 1936; minimum gage height, -0.86 ft Aug. 18, 1936.
Maximum stage since at least 1828, that of Apr. 24, 1965.
REMARKS.--Records good except those for winter period, which are fair. Stage-discharge relation affected by backwater from Wisconsin River and Dam 10. Flow regulated by reservoirs and navigation dams.
COOPERATION.--Gage height record at Dam 9 collected in cooperation with Corps of Engineers.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13,300	41,700	44,600	21,000	19,500	25,000	79,900	80,200	70,700	33,800	21,500	12,800
2	11,000	44,100	47,700	21,000	20,000	25,000	85,200	76,400	71,200	31,800	20,700	13,800
3	12,100	48,200	44,900	21,000	19,000	25,000	90,200	72,800	69,600	31,500	19,900	17,500
4	12,300	50,100	42,000	24,000	17,000	25,300	94,100	69,400	65,400	31,300	18,200	19,700
5	11,900	50,600	40,600	26,000	17,000	26,000	97,100	68,100	60,700	32,100	17,900	20,400
6	13,300	47,800	30,300	24,000	17,200	29,000	99,000	66,900	57,000	33,400	18,100	21,400
7	13,700	47,000	24,600	23,000	17,300	32,000	98,900	66,400	54,300	33,800	18,300	20,700
8	16,600	47,000	22,700	21,000	17,500	30,000	99,400	65,300	53,300	35,300	18,300	19,300
9	23,700	47,200	21,500	20,000	17,600	27,500	96,200	63,600	50,900	37,000	17,600	19,000
10	32,600	49,500	23,000	20,600	17,800	26,000	96,900	62,000	48,700	37,500	16,600	20,200
11	38,200	49,400	24,000	20,000	18,000	25,000	97,400	59,900	47,800	38,500	16,600	21,400
12	38,900	48,600	26,000	20,000	19,000	24,800	99,200	55,600	46,800	37,200	17,100	21,100
13	31,200	47,200	28,000	20,000	18,800	25,000	102,000	51,700	47,300	38,200	15,900	22,300
14	30,400	49,800	30,000	19,000	18,800	32,000	105,000	49,000	47,800	37,800	15,200	21,300
15	29,600	53,800	32,000	18,000	18,800	35,000	110,000	45,300	47,700	37,000	15,600	18,400
16	30,000	55,300	33,000	18,500	18,800	39,000	117,000	43,400	45,300	35,600	16,300	15,900
17	29,200	55,200	35,000	18,500	20,000	41,500	124,000	38,300	43,100	34,700	18,400	17,000
18	28,200	55,700	36,000	18,500	21,000	44,500	131,000	36,700	42,400	33,900	19,800	16,900
19	26,000	56,700	37,000	18,500	22,000	54,000	136,000	40,600	42,600	32,600	21,900	16,500
20	21,300	58,000	38,000	18,500	23,000	56,000	138,000	40,600	44,900	31,700	24,500	16,000
21	19,400	57,000	36,000	18,800	26,000	54,000	137,000	39,200	45,900	31,700	23,700	13,700
22	18,300	58,100	33,000	19,000	25,000	58,000	132,000	36,300	45,600	30,800	22,600	11,200
23	18,300	51,400	29,000	19,500	24,000	57,000	127,000	34,200	44,700	30,800	20,300	10,400
24	19,900	39,300	27,000	20,000	22,000	56,000	120,000	37,000	42,100	31,300	20,600	12,700
25	23,600	38,700	24,000	21,000	21,000	58,000	114,000	44,600	40,500	30,600	20,300	13,400
26	28,100	38,900	23,000	20,700	23,000	59,100	108,000	47,300	37,700	29,700	19,600	12,800
27	26,800	35,800	23,000	20,500	25,000	58,400	102,000	50,000	37,400	27,100	19,700	14,900
28	30,300	27,700	22,000	20,400	26,000	59,700	96,500	52,400	37,600	23,800	18,900	18,700
29	34,600	30,600	20,000	20,000	------	61,200	89,300	56,100	37,600	23,400	19,200	20,000
30	36,800	38,700	19,000	20,000	------	65,800	83,900	62,400	35,900	23,700	19,300	22,200
31	40,000	------	20,000	19,500	------	72,600	------	69,200	------	23,300	15,100	------
TOTAL	759,600	1,419.1M	936,900	630,500	570,100	1,307.4M	3,206.2M	1,680.9M	1,462.5M	1,000.9M	587,700	521,600
MEAN	24,500	47,300	30,220	20,340	20,360	42,170	106,900	54,220	48,750	32,290	18,960	17,390
MAX	40,000	58,100	47,700	26,000	26,000	72,600	138,000	80,200	71,200	38,500	24,500	22,300
MIN	11,000	27,700	19,000	18,000	17,000	24,800	79,900	34,200	35,900	23,300	15,100	10,400
CFSM	.36	.70	.45	.30	.30	.62	1.58	.80	.72	.48	.28	.26
IN.	.42	.78	.52	.35	.31	.72	1.77	.93	.81	.55	.32	.29
AC-FT	1,507M	2,815M	1,858M	1,251M	1,131M	2,593M	6,359M	3,334M	2,901M	1,985M	1,166M	1,035M

CAL YR 1970 TOTAL 11,022,960 MEAN 30,200 MAX 72,100 MIN 9,860 CFSM .45 IN 6.07 AC-FT 21,860,000
WTR YR 1971 TOTAL 14,083,400 MEAN 38,580 MAX 138,000 MIN 10,400 CFSM .57 IN 7.76 AC-FT 27,930,000

M Expressed in thousands.

05411600 TURKEY RIVER AT SPILLVILLE, IOWA

LOCATION.--Lat 43°12'28", long 91°56'56", in SW1/4 NE1/4 sec.19, T.97 N., R.9 W., Winneshiek County, on right bank 60 ft downstream from bridge on county highway W14 at north edge of Spillville, 150 ft downstream from old mill dam, 0.6 mile upstream from Wonder Creek and 98.5 miles above mouth.
DRAINAGE AREA.--177 sq mi.
PERIOD OF RECORD.--June 1956 to current year. Monthly discharge only for some periods, published in WSP 1728.
GAGE.--Water-stage recorder. Datum of gage is 1,034.77 ft above mean sea level.
AVERAGE DISCHARGE.--15 years, 96.7 cfs (7.42 inches per year, 70,060 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,130 cfs Oct. 10 (gage height, 12.20 ft); minimum daily, 33 cfs Sept. 25, 28, 29.
Period of record: Maximum discharge, 7,380 cfs Mar. 29, 1962 (gage height, 15.32 ft); maximum gage height, 16.11 ft Mar. 1, 1965 (backwater from ice); minimum daily discharge, 4.4 cfs Feb. 1-3, 1959.
Flood in June 1947 reached a stage of 18.4 ft, from floodmark (discharge, about 10,000 cfs).
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	285	204	75	44	96	3,030	165	154	153	57	37
2	71	248	214	71	44	90	856	166	147	151	55	37
3	70	270	206	69	42	80	496	161	137	151	54	36
4	67	399	204	66	42	76	421	157	132	147	53	38
5	63	432	200	65	40	74	421	161	128	132	52	44
6	68	285	178	64	42	72	421	155	129	114	50	38
7	61	238	194	63	43	76	433	147	205	97	50	37
8	64	210	190	62	43	82	472	140	394	91	49	37
9	849	225	172	62	44	90	436	138	231	90	50	36
10	2,500	552	180	61	45	100	412	133	169	91	48	38
11	604	405	160	60	45	110	376	139	141	93	47	38
12	420	293	180	59	45	125	341	149	143	92	46	37
13	345	245	150	58	45	140	391	143	752	90	44	38
14	290	228	120	57	45	350	355	137	336	87	43	36
15	255	208	160	55	45	1,500	300	133	252	85	43	36
16	225	190	190	54	46	1,000	273	131	199	82	43	35
17	204	174	170	54	48	820	271	130	159	80	42	35
18	182	168	155	53	50	740	261	139	126	78	41	36
19	164	178	145	52	60	600	265	187	114	141	43	38
20	152	483	135	51	80	530	285	232	151	83	41	40
21	142	793	160	50	90	470	289	224	108	83	41	38
22	138	456	140	50	92	420	285	202	117	88	41	38
23	134	275	120	51	96	380	278	187	330	88	40	38
24	138	250	110	52	98	360	233	207	305	92	40	38
25	136	300	105	52	100	350	191	246	782	96	39	33
26	140	235	97	51	98	345	159	224	406	80	39	34
27	214	212	92	50	96	335	169	179	235	63	39	34
28	357	198	87	48	94	492	174	158	183	65	38	33
29	375	196	83	48	------	867	172	154	161	62	38	33
30	283	194	80	46	------	1,290	166	152	153	62	37	34
31	278	------	77	46	------	2,550	------	152	------	59	37	------
TOTAL	9,063	8,825	4,658	1,755	1,702	14,610	12,632	5,128	6,979	2,966	1,380	1,100
MEAN	292	294	150	56.6	60.8	471	421	165	233	95.7	44.5	36.7
MAX	2,500	793	214	75	100	2,550	3,030	246	782	153	57	44
MIN	61	168	77	46	40	72	159	130	108	59	37	33
CFSM	1.65	1.66	.85	.32	.34	2.66	2.38	.93	1.32	.54	.25	.21
IN.	1.90	1.85	.98	.37	.36	3.07	2.65	1.08	1.47	.62	.29	.23
AC-FT	17,980	17,500	9,240	3,480	3,380	28,980	25,060	10,170	13,840	5,880	2,740	2,180

CAL YR 1970 TOTAL 50,517 MEAN 138 MAX 2,500 MIN 19 CFSM .78 IN 10.62 AC-FT 100,200
WTR YR 1971 TOTAL 70,798 MEAN 194 MAX 3,030 MIN 33 CFSM 1.10 IN 14.88 AC-FT 140,400

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G.HT	DISCHARGE	DATE	TIME	G.HT	DISCHARGE
10-10	0330	12.20	4,130	4-1	0030	11.66	3,760
3-15	--	--	*1,700				

* About

05412500 TURKEY RIVER AT GARBER, IOWA

LOCATION.--Lat 42°44'24", long 91°15'42", in SE1/4 NW1/4 sec.36, T.92 N., R.4 W., Clayton County, on left bank 10 ft downstream from bridge on county highway C43, 800 ft upstream from Wayman Creek, 1,000 ft southeast of Garber, 2,000 ft downstream from Elk Creek, 1 mile downstream from Volga River, and 19.8 miles upstream from mouth.
DRAINAGE AREA.--1,545 sq mi.
PERIOD OF RECORD.--August 1913 to November 1916, May 1919 to September 1927, April 1929 to September 1930, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 634.46 ft above mean sea level. Prior to Feb. 7, 1935, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--51 years(1913-16, 1919-27, 1929-30, 1932-71), 873 cfs (7.67 inches per year, 632,500 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 16,500 cfs June 20 (gage height, 20.81 ft); minimum daily, 279 cfs Sept. 18.
Period of record: Maximum discharge, 32,300 cfs Feb. 23, 1922 (gage height, 28.06 ft, from flood-mark); minimum daily, 49 cfs Jan. 28, 29, 1940.
Maximum stage since at least 1890, that of Feb. 23, 1922.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Twelve discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1308: 1922-25 (M), 1927 (M). WSP 1438: Drainage area.

Rating table (gage height, in feet and discharge, in cubic feet per second).
(Shifting-control method used Oct. 1-9, Dec. 3 to Feb. 18, July 27 to Sept. 30; stage-discharge relation affected by ice Dec. 13 to Mar. 1).

5.3	262	11.0	3,720
5.9	442	14.0	6,900
6.5	682	17.0	10,800
8.0	1,470	21.0	16,800

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	838	1,500	1,010	480	360	2,660	12,300	1,210	1,480	1,120	616	339
2	786	1,440	1,020	470	360	2,340	11,700	1,210	1,270	1,020	702	333
3	741	1,340	1,060	460	355	2,080	6,520	1,170	1,170	946	581	327
4	686	1,290	1,020	450	350	1,900	4,130	1,150	1,080	898	545	328
5	638	1,520	976	440	350	1,900	3,580	1,170	1,020	890	524	365
6	610	1,700	849	435	355	1,740	3,360	1,180	979	874	511	345
7	590	1,410	717	430	360	1,550	3,230	1,120	1,410	838	501	349
8	570	1,220	784	420	360	1,360	3,180	1,070	1,820	1,030	490	328
9	673	1,200	913	420	360	1,280	3,120	1,020	1,670	849	516	324
10	1,940	1,400	869	440	370	1,290	2,880	985	1,440	763	506	347
11	5,580	1,890	625	430	375	1,220	2,590	960	1,450	847	478	320
12	3,290	1,930	668	420	370	1,150	2,440	928	1,190	867	458	310
13	1,870	1,540	700	415	370	1,430	2,820	932	1,360	10,600	444	306
14	1,500	1,360	770	405	370	7,750	2,730	911	1,510	4,380	436	299
15	1,270	1,270	900	400	370	13,100	2,380	877	1,210	2,500	428	293
16	1,110	1,210	1,500	390	380	9,220	2,130	849	1,050	1,830	420	288
17	1,010	1,140	1,700	390	400	6,620	2,030	826	943	1,490	413	282
18	930	1,080	1,600	385	450	6,740	1,890	902	878	1,390	405	279
19	868	1,050	1,200	380	2,500	6,450	1,790	3,280	836	2,550	404	302
20	820	1,140	800	380	6,600	4,700	1,760	2,500	8,370	1,880	411	314
21	779	1,690	760	375	5,600	4,200	1,810	1,870	3,040	1,290	406	303
22	758	2,450	800	370	5,000	3,870	1,730	1,580	2,220	1,080	404	292
23	744	1,910	840	375	4,400	3,320	1,630	1,400	1,710	1,080	393	288
24	765	1,160	660	380	4,000	2,910	1,550	1,630	1,460	913	380	283
25	811	991	600	380	3,700	2,670	1,460	2,020	2,270	842	372	285
26	860	1,180	580	380	3,350	2,440	1,380	2,010	2,520	786	366	309
27	943	1,200	560	370	3,100	2,690	1,330	1,700	2,300	744	361	305
28	1,280	1,110	540	370	2,850	5,260	1,340	1,490	1,670	727	356	296
29	1,910	1,080	520	370	------	6,960	1,300	1,350	1,350	700	352	301
30	1,920	1,030	500	365	------	6,620	1,240	1,240	1,180	667	347	314
31	1,610	------	490	360	------	9,230	------	1,180	------	638	342	------
TOTAL	38,700	41,431	26,531	12,535	47,765	126,650	91,330	41,720	51,856	47,029	13,868	9,354
MEAN	1,248	1,381	856	404	1,706	4,085	3,044	1,346	1,729	1,517	447	312
MAX	5,580	2,450	1,700	480	6,600	13,100	12,300	3,280	8,370	10,600	702	365
MIN	570	991	490	360	350	1,150	1,240	826	836	638	342	279
CFSM	.81	.89	.55	.26	1.10	2.64	1.97	.87	1.12	.98	.29	.20
IN.	.93	1.00	.64	.30	1.15	3.05	2.20	1.00	1.25	1.13	.33	.23
AC-FT	76,760	82,180	52,620	24,860	94,740	251,200	181,200	82,750	102,900	93,280	27,510	18,550

CAL YR 1970 TOTAL 311,839 MEAN 854 MAX 5,870 MIN 192 CFSM .55 IN 7.51 AC-FT 618,500
WTR YR 1971 TOTAL 548,769 MEAN 1,503 MAX 13,100 MIN 279 CFSM .97 IN 13.21 AC-FT 1,088,000

PEAK DISCHARGE (BASE, 8,000 CFS)

DATE	TIME	G.HT	DISCHARGE	DATE	TIME	G.HT	DISCHARGE
3-15	0200	19.02	13,600	6-20	0830	20.81	16,500
4-1	0700	18.39	12,700	7-13	0245	19.05	13,700

05414500 LITTLE MAQUOKETA RIVER NEAR DURANGO, IOWA

LOCATION.--Lat 42°33'18", long 90°44'46", in NW1/4 NE1/4 sec.5, T.89 N., R.2 E., Dubuque County, on left bank 10 ft upstream from bridge on county highway, 300 ft upstream from Cloie Branch, 1.7 miles east of Durango, 5.6 miles northwest of court house at Dubuque, and 6.4 miles upstream from mouth.
DRAINAGE AREA.--130 sq mi.
PERIOD OF RECORD.--October 1934 to current year.
GAGE.--Water-stage recorder. Datum of gage is 612.03 ft above mean sea level. Prior to Jan. 5, 1939, non-recording gage at same site and datum.
AVERAGE DISCHARGE.--37 years,79.8 cfs (8.34 inches per year, 57,820 acre-ft per year); median of yearly mean discharges, 71 cfs (7.4 inches per year, 51,400 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 7,840 cfs Feb. 26 (gage height, 15.71 ft); minimum daily, 18 cfs Jan. 30 to Feb. 4.
Period of record: Maximum discharge, 23,000 cfs June 13, 1947 (gage height, 21.23 ft), from rating curve extended above 6,300 cfs on basis of slope-area measurements at gage heights 17.05, 19.82, 20.75, and 22.1 ft; minimum daily, 5 cfs July 12, 13, 1936.
Flood of June 15, 1925, reached a stage of about 22.1 ft (discharge, about 29,000 cfs), computed by Corps of Engineers.
REMARKS.--Records excellent except those for winter periods, which are good. Records of periodic chemical analyses for current year published in Part 2 of this report.
COOPERATION.--Six discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1508: 1935-38, 1939 (M), 1940, 1943 (M), 1946, 1948.

Rating table (gage height, in feet and discharge, in cubic feet per second). (Shifting-control method used Apr. 25 to June 7, July 14 to Sept. 17; stage-discharge relation affected by ice Dec. 30 to Feb. 9, Feb. 19, 20).

2.9	18	5.0	375
3.1	32	7.0	1,020
3.5	77	8.0	1,450
4.0	153	11.0	3,150

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	47	42	27	18	491	266	67	87	32	28	22
2	72	47	40	29	18	219	196	70	61	29	199	22
3	63	46	38	27	18	169	168	64	54	28	44	21
4	57	47	38	26	18	149	146	65	50	29	33	82
5	55	46	36	24	19	156	133	71	48	33	30	309
6	52	44	27	23	21	132	125	83	45	31	29	42
7	49	43	35	23	24	111	121	68	78	29	28	30
8	48	41	36	22	29	96	115	64	48	84	28	27
9	99	46	38	22	33	89	110	61	41	42	28	1,190
10	78	50	36	22	35	90	97	59	41	41	27	339
11	56	43	41	23	36	93	94	58	50	61	26	75
12	53	42	43	23	34	88	101	58	121	36	25	53
13	50	43	40	22	33	566	106	55	49	229	25	44
14	48	41	33	22	32	2,220	91	54	43	49	27	38
15	44	39	33	21	31	1,110	87	52	50	38	26	34
16	43	39	40	21	30	393	85	50	38	34	25	31
17	41	40	42	21	31	297	93	48	35	32	24	30
18	41	40	40	21	44	319	82	54	33	94	24	28
19	41	40	40	21	800	281	78	318	33	207	25	37
20	41	56	30	22	3,000	228	77	89	160	49	25	36
21	40	50	34	22	1,270	241	100	70	53	40	24	29
22	42	43	36	23	802	253	89	64	39	35	25	27
23	45	31	36	22	583	191	79	66	167	37	249	26
24	52	35	29	21	213	166	75	132	48	36	29	25
25	48	37	31	20	141	159	72	81	133	33	25	25
26	43	40	29	20	1,780	160	69	69	55	32	24	27
27	58	40	31	19	2,810	346	75	63	46	30	24	31
28	63	38	27	19	996	409	79	59	39	30	23	29
29	54	39	24	19	------	289	72	56	35	29	22	25
30	52	40	24	18	------	247	68	54	34	29	22	24
31	50	------	25	18	------	274	------	55	------	28	22	------
TOTAL	1,655	1,273	1,074	683	12,899	10,032	3,149	2,277	1,814	1,566	1,215	2,758
MEAN	53.4	42.4	34.6	22.0	461	324	105	73.5	60.5	50.5	39.2	91.9
MAX	99	56	43	29	3,000	2,220	266	318	167	229	249	1,190
MIN	40	31	24	18	18	88	68	48	33	28	22	21
CFSM	.41	.33	.27	.17	3.55	2.49	.81	.57	.47	.39	.30	.71
IN.	.47	.36	.31	.20	3.69	2.87	.90	.65	.52	.45	.35	.79
AC-FT	3,280	2,530	2,130	1,350	25,590	19,900	6,250	4,520	3,600	3,110	2,410	5,470

CAL YR 1970 TOTAL 22,804 MEAN 62.5 MAX 1,390 MIN 18 CFSM .48 IN 6.53 AC-FT 45,230
WTR YR 1971 TOTAL 40,395 MEAN 111 MAX 3,000 MIN 18 CFSM .85 IN 11.56 AC-FT 80,120

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-20	--	--	* 3,900	3-14	2130	12.35	4,180
2-26	2230	15.71	7,840	9-9	2100	14.03	5,830

* About

05417000 MAQUOKETA RIVER NEAR MANCHESTER, IOWA

LOCATION.--Lat 42°27'22", long 91°25'56", in NW1/4 NE1/4 sec.9, T.88 N., R.5 W., Delaware County, on left bank 0.6 mile downstream from Sand Creek, 1.5 miles upstream from Spring Branch, 2.3 miles southeast from dam on Maquoketa River in Manchester, and at mile 100.5.
DRAINAGE AREA.--305 sq mi.
PERIOD OF RECORD.--April 1933 to current year.
GAGE.--Water-stage recorder. Concrete control since June 1, 1935. Datum of gage is 895.06 ft above mean sea level, adjustment of 1912.
AVERAGE DISCHARGE.--38 years, 200 cfs (8.90 inches per year, 144,900 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 5,500 cfs Feb. 20 (gage height, 13.16 ft, backwater from ice); minimum daily, 43 cfs Sept. 29.
Period of record: Maximum discharge, 20,000 cfs June 13, 1947 (gage height, 21.36 ft. from floodmarks), from rating curve extended above 10,000 cfs by velocity-area studies; minimum daily, 6 cfs June 8, 29, 1934.
A flood at Manchester on June 15, 1925, stage unknown, exceeded all other known floods (discharge 25,400 cfs, from determination of peak flow by Prof. F. A. Nagler, University of Iowa).
REMARKS.--Records excellent except those for winter period, which are good.
REVISIONS (WATER YEARS).--WSP 1308: 1948. WSP 1438: Drainage area.

Rating table (gage height, in feet and discharge, in cubic feet per second). (Shifting-control method used Sept. 22-30; stage-discharge relation affected by ice Nov. 24, Dec. 15, 16, 21, 24, Dec. 30 to Feb. 27).

4.6	41	5.6	235	9.0	2,610
4.9	63	6.2	540	10.5	3,950
5.2	110	7.0	1,060	12.0	5,550

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	228	356	215	120	71	889	847	165	189	214	134	69
2	218	316	212	110	71	627	616	165	180	191	165	68
3	196	295	209	102	70	499	434	160	165	174	143	67
4	176	282	195	99	70	429	374	159	155	171	130	73
5	172	269	185	91	69	403	344	161	146	171	124	96
6	168	260	143	87	68	344	324	166	137	161	122	81
7	162	245	174	80	67	278	316	161	139	151	119	73
8	161	229	177	76	66	270	311	155	135	179	117	70
9	232	264	173	75	67	271	299	148	127	206	117	75
10	343	407	163	74	68	264	273	142	121	187	113	87
11	304	374	151	76	68	253	263	143	120	241	109	75
12	256	325	179	77	69	245	268	137	120	243	105	71
13	236	303	170	78	70	528	271	133	116	2,350	104	69
14	218	288	145	79	71	3,430	257	131	111	1,420	104	68
15	199	267	160	80	72	4,320	241	127	114	567	102	66
16	187	255	170	80	74	1,210	233	124	106	368	100	67
17	180	246	167	80	82	731	235	120	103	290	98	75
18	176	235	163	80	140	860	229	132	104	248	96	75
19	170	234	157	80	400	677	221	244	101	366	98	81
20	165	296	133	79	5,400	512	218	426	687	300	97	77
21	162	337	160	78	3,800	532	210	273	607	233	94	126
22	166	309	157	77	2,700	555	199	214	292	206	93	89
23	169	212	150	76	1,700	446	191	195	227	222	90	62
24	192	250	150	76	1,300	389	181	260	204	208	89	56
25	228	241	146	75	1,000	366	170	422	2,070	184	88	46
26	252	225	148	74	1,100	352	163	369	934	171	89	46
27	353	211	144	74	1,500	497	174	268	524	159	72	46
28	472	199	134	73	1,280	1,400	186	228	357	156	55	46
29	507	202	130	73	------	1,040	156	203	279	146	57	43
30	423	202	128	72	------	758	149	185	242	140	66	45
31	405	------	125	72	------	781	------	175	------	134	69	------
TOTAL	7,476	8,134	5,013	2,523	21,513	24,156	8,353	6,091	8,912	10,157	3,159	2,088
MEAN	241	271	162	81.4	768	779	278	196	297	328	102	69.6
MAX	507	407	215	120	5,400	4,320	847	426	2,070	2,350	165	126
MIN	161	199	125	72	66	245	149	120	101	134	55	43
CFSM	.79	.89	.53	.27	2.52	2.55	.91	.64	.97	1.08	.33	.23
IN.	.91	.99	.61	.31	2.62	2.95	1.02	.74	1.09	1.24	.39	.25
AC-FT	14,830	16,130	9,940	5,000	42,670	47,910	16,570	12,080	17,680	20,150	6,270	4,140

CAL YR 1970 TOTAL 83,869 MEAN 230 MAX 4,150 MIN 41 CFSM .75 IN 10.23 AC-FT 166,400
WTR YR 1971 TOTAL 107,575 MEAN 295 MAX 5,400 MIN 43 CFSM .97 IN 13.12 AC-FT 213,400

PEAK DISCHARGE (BASE, 2,600 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-20	--	--	* 5,500	6-25	0700	9.22	2,790
3-15	0415	11.82	5,350	7-13	1245	9.73	3,240

* About

05417700 BEAR CREEK NEAR MONMOUTH, IOWA

LOCATION.--Lat 42°02'18", long 90°52'59", in NE1/4 SE1/4 sec.31, T.84 N., R.1 E., Jackson County, on right bank 15 ft downstream from bridge on county highway, 1.6 miles upstream from Rat Run, 2.8 miles south of Monmouth, and 8.2 miles upstream from mouth.
DRAINAGE AREA.--61.3 sq mi.
PERIOD OF RECORD.--October 1957 to current year.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 728.80 ft above mean sea level.
AVERAGE DISCHARGE.--14 years, 40.2 cfs (8.91 inches per year, 29,120 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,640 cfs Feb. 20 (gage height, 12.73 ft, backwater from ice); minimum daily, 4.2 cfs Jan. 29.
Period of record: Maximum discharge, 7,340 cfs Sept. 21, 1965 (gage height, 13.76 ft); minimum daily, 1.8 cfs Dec. 8-12, 1958.
Flood in June 1944 reached a stage of about 21.5 ft, from floodmark, from information by local residents (discharge not determined).
REMARKS.--Records good except those for winter period, which are poor.
REVISIONS (WATER YEARS).--WSP 1708: 1959.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Nov. 1 to Feb. 17, June 2-9; stage-discharge relation affected by ice Dec. 3-9, Dec. 14 to Mar. 10).

4.9	3.8	5.3	16	7.0	500
5.0	5.5	5.4	25	9.0	1,350
5.1	7.9	5.7	70	10.0	1,900
5.2	11	6.1	176		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	21	21	13	7.6	48	22	16	63	23	13	6.8
2	30	21	18	13	11	28	20	16	23	21	13	6.7
3	27	21	17	11	13	20	18	16	21	20	13	6.6
4	25	20	15	12	13	21	19	16	19	18	12	11
5	23	19	11	19	13	22	17	18	17	20	11	69
6	20	19	8.0	19	12	18	16	21	16	18	11	19
7	20	18	9.7	15	12	14	15	18	15	17	11	13
8	20	17	14	16	12	13	16	16	14	16	11	10
9	31	22	17	17	11	16	17	15	13	15	11	19
10	24	24	15	17	11	19	18	15	12	16	12	22
11	20	21	33	15	10	22	18	14	11	20	11	11
12	19	21	27	13	9.8	26	20	14	11	18	9.9	9.4
13	18	20	21	12	9.0	113	21	14	10	368	9.7	9.5
14	17	19	11	11	8.0	270	19	13	10	69	15	9.7
15	16	19	15	7.6	7.0	188	19	13	11	32	16	8.8
16	19	18	19	6.6	6.0	86	19	12	10	23	11	9.3
17	21	19	23	6.4	16	45	25	12	10	19	9.9	9.4
18	21	19	20	6.2	480	41	21	13	9.6	17	9.6	9.4
19	20	18	16	6.4	1,800	129	18	34	9.6	19	9.4	14
20	22	24	10	7.0	1,900	95	21	20	122	16	9.1	14
21	24	21	18	12	120	65	18	15	73	15	8.8	11
22	26	22	20	9.6	50	39	17	14	41	15	8.6	9.5
23	21	8.9	17	9.0	46	26	16	14	133	36	7.9	7.3
24	20	14	11	10	40	25	15	22	48	29	7.7	6.9
25	18	17	15	12	90	25	15	22	960	17	7.6	7.8
26	17	19	14	11	600	23	15	16	118	29	7.2	9.1
27	25	21	12	8.0	250	23	20	14	62	19	7.5	9.5
28	29	21	11	4.6	80	23	25	13	43	15	7.1	9.9
29	27	20	10	4.2	------	21	19	13	33	15	7.0	8.0
30	24	20	10	4.4	------	20	17	12	27	16	7.0	7.1
31	23	------	11	5.6	------	21	------	13	------	14	6.7	------
TOTAL	698	583.9	489.7	333.6	5,637.4	1,545	556	494	1,965.2	1,005	311.7	373.7
MEAN	22.5	19.5	15.8	10.8	201	49.8	18.5	15.9	65.5	32.4	10.1	12.5
MAX	31	24	33	19	1,900	270	25	34	960	368	16	69
MIN	16	8.9	8.0	4.2	6.0	13	15	12	9.6	14	6.7	6.6
CFSM	.37	.32	.26	.18	3.28	.81	.30	.26	1.07	.53	.16	.20
IN.	.42	.35	.30	.20	3.42	.94	.34	.30	1.19	.61	.19	.23
AC-FT	1,380	1,160	971	662	11,180	3,060	1,100	980	3,900	1,990	618	741

CAL YR 1970 TOTAL 14,785.3 MEAN 40.5 MAX 1,100 MIN 6.2 CFSM .66 IN 8.97 AC-FT 29,330
WTR YR 1971 TOTAL 13,993.2 MEAN 38.3 MAX 1,900 MIN 4.2 CFSM .62 IN 8.49 AC-FT 27,760

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-20	--	--	* 2,640	6-25	1200	8.95	1,320
2-26	--	--	* 1,020				

* About

05418500 MAQUOKETA RIVER NEAR MAQUOKETA, IOWA

LOCATION.--Lat 42°05'05", long 90°38'04", in SW1/4 NE1/4 sec.17, T.84 N., R.3 E., Jackson County, on right bank 500 ft upstream from bridge on State Highway 62, 1,200 ft upstream from Prairie Creek, 2.0 miles northeast of Maquoketa, 2.2 miles downstream from North Fork, and 26.7 miles upstream from mouth.
DRAINAGE AREA.--1,553 sq mi.
PERIOD OF RECORD.--September 1913 to current year. Prior to October 1939, published as "below North Fork near Maquoketa". Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 636.52 ft above mean sea level, adjustment of 1912. Prior to July 14, 1924, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--58 years, 972 cfs (8.50 inches per year, 704,200 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 32,700 cfs Feb. 20 (gage height, 21.30 ft); minimum daily, 350 cfs May 14.
Period of record: Maximum discharge, 48,000 cfs June 27, 1944 (gage height, 24.70 ft); minimum daily, 105 cfs Feb. 11-20, 1936.
A flood, probably in 1903, reached a stage of 23.5 ft (discharge, 43,000 cfs).
REMARKS.--Records good except those for winter period, which are poor. Diurnal fluctuation caused by powerplant 4 miles above station. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Five discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 405: 1914. WSP 1438: Drainage area. WSP 1508: 1914-17, 1919-25, 1926 (M), 1929, 1933-34 (M), 1943.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used July 16-23; stage-discharge relation affected by ice Dec. 27 to Feb. 19).

Oct. 1 to Feb. 27				Feb. 28 to Sept. 30			
0.6	350	14.0	12,100	0.4	350	9.0	6,050
2.0	910	18.0	21,000	1.8	908	13.0	10,600
5.0	2,640	21.0	31,500	5.0	2,750		
9.0	5,920						

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,610	1,150	721	680	450	4,190	2,090	780	983	1,350	664	409
2	1,220	1,110	719	650	450	3,390	2,160	683	899	1,210	781	406
3	1,100	921	733	630	440	2,540	1,890	772	773	1,120	902	423
4	978	883	668	610	430	2,090	1,620	694	718	971	1,100	442
5	904	850	658	590	420	1,910	1,420	793	766	968	694	966
6	879	733	533	560	400	1,790	1,320	883	713	877	620	952
7	848	633	406	540	380	1,570	1,280	815	736	887	606	547
8	826	774	536	520	370	1,320	1,240	708	682	831	593	553
9	866	783	662	530	380	1,260	1,220	755	623	835	658	543
10	926	800	699	540	385	1,240	1,180	756	599	953	772	2,050
11	888	840	640	540	390	1,260	1,140	646	614	875	843	871
12	975	978	684	540	400	1,240	1,120	787	714	1,080	929	690
13	909	900	686	530	410	2,450	1,130	893	1,120	4,630	933	629
14	859	868	657	520	420	7,220	1,110	350	888	5,210	802	711
15	797	707	567	510	430	9,740	1,080	635	629	3,160	898	814
16	763	598	527	500	600	7,570	1,040	628	663	1,900	820	882
17	723	595	594	490	1,000	3,740	1,010	631	623	1,440	839	816
18	719	589	730	485	5,500	2,830	1,060	623	612	1,230	854	795
19	703	498	753	480	15,000	3,270	972	781	577	1,300	673	836
20	685	613	627	470	30,200	2,980	778	1,340	1,760	1,420	535	913
21	685	607	539	475	13,900	2,630	991	1,120	2,930	1,180	516	824
22	670	649	422	480	6,500	2,670	1,050	1,060	1,900	1,000	516	780
23	692	542	578	485	4,180	2,090	836	939	2,420	966	487	820
24	717	513	606	490	3,100	1,990	876	930	2,590	1,020	497	845
25	723	641	541	500	3,040	1,540	800	1,310	10,400	968	476	832
26	722	548	592	490	6,300	1,650	800	1,130	8,840	893	459	806
27	810	730	700	480	14,800	1,510	770	1,120	3,560	778	450	838
28	871	852	920	470	6,230	1,780	876	1,040	2,470	783	465	827
29	916	798	860	465	------	2,870	840	892	1,840	736	465	617
30	1,150	784	790	460	------	2,580	836	848	1,550	689	444	587
31	1,040	------	720	455	------	2,170	------	765	------	661	433	------
TOTAL	27,174	22,487	20,068	16,165	116,505	87,080	34,535	26,107	54,192	41,921	20,724	23,024
MEAN	877	750	647	521	4,161	2,809	1,151	842	1,806	1,352	669	767
MAX	1,610	1,150	920	680	30,200	9,740	2,160	1,340	10,400	5,210	1,100	2,050
MIN	670	498	406	455	370	1,240	770	350	577	661	433	406
CFSM	.56	.48	.42	.34	2.68	1.81	.74	.54	1.16	.87	.43	.49
IN.	.65	.54	.48	.39	2.79	2.09	.83	.63	1.30	1.00	.50	.55
AC-FT	53,900	44,600	39,800	32,060	231,100	172,700	68,500	51,780	107,500	83,150	41,110	45,670

CAL YR 1970 TOTAL 371,029 MEAN 1,017 MAX 13,100 MIN 350 CFSM .65 IN 8.89 AC-FT 735,900
WTR YR 1971 TOTAL 489,982 MEAN 1,342 MAX 30,200 MIN 350 CFSM .86 IN 11.74 AC-FT 971,900

PEAK DISCHARGE (BASE, 7,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-20	1000	21.30	32,700	3-15	0900	13.20	10,900
2-27	1400	16.88	18,000	6-25	2000	14.89	13,700

05420500 MISSISSIPPI RIVER AT CLINTON, IOWA

LOCATION.--Lat 41°46'53", long 90°15'04", in NW1/4 sec.34, T.81 N., R.6 E., Clinton County, on right bank at foot of Seventh Avenue in Camanche, 5.0 miles upstream from Wapsipinicon River, 6.4 miles downstream from Clinton, 10.6 miles downstream from dam 13, and at mile 511.8 upstream from Ohio River. Prior to June 6, 1969, at site 400 ft downstream.
DRAINAGE AREA.--85,600 sq mi, approximately, at Fulton-Lyons Bridge where discharge measurements are made.
PERIOD OF RECORD.--June to August 1873 (fragmentary), October 1873 to current year (October 1932 to September 1939, published as "at Le Claire").
GAGE.--Water-stage recorder. Datum of gage is 562.68 ft above mean sea level. Oct. 1, 1955, to June 5, 1969, water-stage recorder at site 400 ft downstream at same datum. Auxiliary water-stage recorder at dam 13 since Oct. 1, 1958. See WSP 1728 for history of changes prior to Oct. 1, 1955.
AVERAGE DISCHARGE.--98 years, 46,930 cfs (7.45 inches per year, 34,000,000 acre-ft per year).
EXTREMES.--Current year: Maximum daily discharge, 168,000 cfs Apr. 23; maximum gage height, 18.03 ft Apr. 24; minimum daily discharge, 18,000 cfs Sept. 24, 25; minimum gage height, 8.45 ft Sept. 25.
Period of record: Maximum daily discharge, 307,000 cfs Apr. 28, 1965; maximum gage height, 24.65 ft Apr. 28, 1965; minimum daily discharge, 6,500 cfs Dec. 25-27, 1933.
REMARKS.--Records good except those for winter period, which are poor. Flow regulated by reservoirs and navigation dams. Records of water temperature for the current year are published in Part 2, Water Resources Data for Illinois.
COOPERATION.--Seven discharge measurements furnished by Corps of Engineers.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27,200	49,000	48,700	26,000	26,000	60,000	84,400	114,000	75,600	45,700	28,000	21,100
2	23,000	51,200	55,300	26,000	25,000	54,000	95,300	103,000	80,800	45,100	26,900	19,100
3	22,000	56,900	58,400	26,000	25,000	47,000	101,000	96,800	83,300	42,900	27,600	19,700
4	21,300	63,500	62,000	26,000	24,000	40,000	101,000	90,700	83,800	39,900	28,100	23,100
5	21,100	64,900	59,800	29,000	24,000	37,000	103,000	87,100	83,700	38,000	28,100	29,900
6	20,700	62,700	55,000	29,000	24,000	39,000	105,000	81,400	82,200	37,600	28,000	29,600
7	20,300	61,300	40,000	29,000	24,000	40,000	108,000	75,100	78,000	38,100	27,400	29,200
8	20,300	61,600	28,000	29,000	23,000	39,000	111,000	77,600	72,900	40,600	24,000	29,000
9	26,400	62,000	27,000	29,000	22,000	38,000	117,000	78,100	67,500	43,600	22,500	26,200
10	36,000	64,300	31,000	29,000	22,000	38,000	117,000	77,400	64,000	43,500	22,900	25,100
11	41,500	64,700	33,000	26,000	23,000	39,000	117,000	76,100	64,600	45,400	21,300	27,800
12	46,500	65,500	28,000	24,000	25,000	40,000	117,000	75,000	65,200	46,600	22,300	28,000
13	49,000	66,200	26,000	25,000	25,000	43,900	117,000	72,500	61,500	49,300	22,700	26,700
14	45,000	66,500	31,000	25,000	25,000	49,400	119,000	68,300	60,400	55,900	25,100	27,200
15	39,300	65,100	30,000	26,000	24,000	64,200	121,000	64,600	60,400	56,200	25,400	25,500
16	34,500	62,600	32,000	26,000	24,000	74,500	125,000	59,700	60,300	49,900	23,300	22,000
17	33,900	63,400	36,000	26,000	25,000	72,500	131,000	53,900	58,200	45,600	25,000	21,300
18	34,700	64,900	40,000	25,000	30,000	62,900	137,000	46,900	55,300	43,500	26,400	21,100
19	34,700	66,200	42,000	25,000	45,000	65,600	145,000	50,500	55,600	43,100	27,400	21,500
20	34,600	69,900	38,000	24,000	70,000	68,800	154,000	57,700	57,700	43,200	28,200	22,400
21	33,100	69,400	37,000	23,000	98,000	73,400	161,000	57,400	61,900	40,100	29,700	23,100
22	28,400	68,300	38,000	23,000	100,000	83,300	166,000	55,100	67,200	39,300	30,300	20,000
23	25,800	64,600	41,000	23,000	80,000	86,400	168,000	50,700	62,200	40,200	30,800	19,200
24	24,900	57,600	38,000	24,000	56,000	82,100	167,000	50,900	60,500	40,500	30,900	18,000
25	26,600	51,900	37,000	25,000	50,000	79,900	164,000	55,800	62,000	40,100	30,300	18,000
26	28,600	46,100	36,000	26,000	49,000	80,000	159,000	57,200	65,700	39,600	28,800	21,400
27	36,600	45,900	35,000	26,000	58,000	79,500	151,000	58,200	62,000	38,500	27,500	21,400
28	41,600	47,600	33,000	26,000	62,000	79,300	145,000	59,600	52,800	34,500	25,400	21,500
29	43,100	49,200	31,000	26,000	------	79,600	136,000	63,500	48,400	33,400	22,000	28,000
30	44,100	48,700	28,000	26,000	------	79,500	125,000	66,100	46,100	32,000	21,600	30,000
31	45,300	------	25,000	26,000	------	80,100	------	69,900	------	30,600	21,600	------
TOTAL	1,010.1M	1,801.7M	1,180.2M	804,000	1,108.0M	1,895.9M	3,867.7M	2,150.8M	1,959.8M	1,302.5M	809,500	716,100
MEAN	32,580	60,060	38,070	25,940	39,570	61,160	128,900	69,380	65,330	42,020	26,110	23,870
MAX	49,000	69,900	62,000	29,000	100,000	86,400	168,000	114,000	83,800	56,200	30,900	30,000
MIN	20,300	45,900	25,000	23,000	22,000	37,000	84,400	46,900	46,100	30,600	21,300	18,000
CFSM	.38	.70	.44	.30	.46	.71	1.51	.81	.76	.49	.31	.28
IN.	.44	.78	.51	.35	.48	.82	1.68	.93	.85	.57	.35	.31
AC-FT	2,004M	3,574M	2,341M	1,595M	2,198M	3,761M	7,672M	4,266M	3,887M	2,584M	1,606M	1,420M

CAL YR 1970 TOTAL 14,751,800 MEAN 40,420 MAX 93,000 MIN 16,800 CFSM .47 IN 6.41 AC-FT 29,260,000
WTR YR 1971 TOTAL 18,606,300 MEAN 50,980 MAX 168,000 MIN 18,000 CFSM .60 IN 8.09 AC-FT 36,910,000

M Expressed in thousands.

05420560 WAPSIPINICON RIVER NEAR ELMA, IOWA

LOCATION.--Lat 43°14'34", long 92°31'48", in NW1/4 NW1/4 sec.8, T.97 N., R.14 W., Howard County, on right bank 10 ft downstream from bridge on county highway B17, 0.2 mile downstream from small left-bank tributary, 4.8 miles west of Elma, and at mile 217.9.
DRAINAGE AREA.--95.2 sq mi.
PERIOD OF RECORD.--October 1958 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,130.36 ft above mean sea level.
AVERAGE DISCHARGE.--13 years, 53.8 cfs (7.67 inches per year, 38,980 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,420 cfs Mar. 31 (gage height, 12.50 ft); maximum gage height, 13.27 ft Mar. 16 (backwater from ice); minimum daily discharge, 7.7 cfs Sept. 16.
Period of record: Maximum discharge, about 5,700 cfs Mar. 29, 1962 (gage height, 14.84 ft, backwater from ice); minimum daily, 1.9 cfs Feb. 4-8, 1959.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23-27, Dec. 5 to Mar. 31).

3.8	6.4	7.0	190
3.9	9.1	9.0	391
4.0	12	11.0	740
5.0	63	12.0	1,100

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	98	59	20	13	76	1,090	38	46	56	12	8.4
2	14	84	64	20	13	77	390	42	41	41	12	8.2
3	13	186	62	18	13	74	158	39	32	34	11	8.3
4	12	261	59	13	13	69	145	37	28	39	11	8.9
5	12	153	34	11	14	62	144	38	26	43	11	9.5
6	13	107	21	11	14	59	146	35	24	37	11	9.4
7	13	87	30	12	14	55	155	31	152	32	11	8.7
8	16	74	47	13	14	52	171	29	206	29	11	8.4
9	364	164	37	14	14	48	160	28	98	27	10	8.7
10	711	291	25	14	14	46	127	27	61	26	10	9.9
11	238	152	17	15	14	44	102	26	48	26	10	11
12	117	105	26	15	13	43	95	25	41	24	9.8	10
13	90	93	36	15	13	54	94	25	38	42	9.5	8.6
14	73	92	35	15	13	200	80	24	33	28	9.3	8.4
15	61	79	34	15	13	500	69	23	29	21	9.4	7.9
16	53	68	36	15	13	900	64	23	26	19	9.2	7.7
17	48	63	36	15	13	500	67	23	25	18	9.0	7.9
18	44	61	33	16	14	360	62	48	24	16	8.9	8.0
19	39	68	30	16	23	310	62	89	122	16	9.7	8.7
20	38	273	27	16	49	270	58	72	741	15	10	9.1
21	35	328	25	16	66	230	53	52	126	15	9.5	8.5
22	34	239	25	16	74	172	48	42	73	14	9.0	8.5
23	33	136	24	15	76	138	44	40	54	14	8.8	9.4
24	39	94	23	15	73	122	40	47	64	22	8.7	9.7
25	47	106	22	15	69	108	38	53	343	15	8.6	9.1
26	47	80	21	15	66	96	36	46	282	14	8.5	9.0
27	328	69	21	14	66	96	36	39	107	13	8.6	9.1
28	408	64	20	14	70	400	39	35	63	13	8.5	8.7
29	166	62	20	14	------	660	38	31	47	13	8.4	8.0
30	112	57	20	14	------	800	36	29	69	13	8.3	8.0
31	116	------	20	14	------	1,020	------	28	------	12	8.3	------
TOTAL	3,349	3,794	989	461	874	7,641	3,847	1,164	3,069	747	300.0	263.7
MEAN	108	126	31.9	14.9	31.2	246	128	37.5	102	24.1	9.68	8.79
MAX	711	328	64	20	76	1,020	1,090	89	741	56	12	11
MIN	12	57	17	11	13	43	36	23	24	12	8.3	7.7
CFSM	1.13	1.32	.34	.16	.33	2.58	1.34	.39	1.07	.25	.10	.09
IN.	1.31	1.48	.39	.18	.34	2.99	1.50	.45	1.20	.29	.12	.10
AC-FT	6,640	7,530	1,960	914	1,730	15,160	7,630	2,310	6,090	1,480	595	523

CAL YR 1970 TOTAL 17,537.5 MEAN 48.0 MAX 711 MIN 8.8 CFSM .50 IN 6.85 AC-FT 34,790
WTR YR 1971 TOTAL 26,498.7 MEAN 72.6 MAX 1,090 MIN 7.7 CFSM .76 IN 10.35 AC-FT 52,560

PEAK DISCHARGE (BASE, 600 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-10	1000	11.16	780	3-31	2115	12.50	1,420
3-16	--	--	* 1,000	6-20	0230	12.27	1,290

* About

05421000 WAPSIPINICON RIVER AT INDEPENDENCE, IOWA

LOCATION.--Lat 42°27'49", long 91°53'42", in SE1/4 sec.4, T.88 N., R.9 W., Buchanan County, on right bank at Sixth Street in Independence, 1,800 ft downstream from dam at abandoned hydroelectric plant, 4.9 miles downstream from Otter Creek, 9.7 miles upstream from Pine Creek, and at mile 142.5.
DRAINAGE AREA.--1,048 sq mi.
PERIOD OF RECORD.--July 1933 to current year.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 882.85 ft above mean sea level. Prior to May 24, 1941, nonrecording gage in tailrace of powerplant 1,800 ft upstream at datum 80.00 ft lower.
AVERAGE DISCHARGE.--38 years, 547 cfs (7.09 inches per year, 396,300 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 6,580 cfs Apr. 4 (gage height, 10.29 ft); minimum daily, 44 cfs Sept. 18.
Period of record: Maximum discharge, 26,800 cfs July 18, 1968 (gage height, 21.11 ft); minimum daily, about 7.0 cfs many times in period 1933-34.
Maximum stage since at least 1901, that of July 18, 1968.
REMARKS.--Records excellent. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1938-39, 1940 (M), 1947.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Jan. 6-21, 27-29, Feb. 1-3, 5, 7-21).

4.5	44	5.0	235	7.0	2,360
4.6	69	5.4	510	9.0	4,900
4.8	138	6.0	1,140	11.0	7,500

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	393	1,300	825	247	182	2,200	3,970	555	862	780	155	63
2	359	1,330	788	247	180	2,040	4,420	553	817	640	164	60
3	315	1,300	796	250	173	1,910	5,710	545	889	565	142	59
4	277	1,180	755	228	169	1,780	6,330	537	927	508	130	56
5	266	1,050	739	203	160	1,650	4,760	533	771	488	121	70
6	252	1,000	560	180	154	1,470	3,340	544	655	451	115	66
7	238	1,000	480	220	150	1,300	2,620	541	655	417	110	62
8	243	1,020	529	230	148	1,210	2,090	512	901	600	106	63
9	518	1,070	575	210	145	1,080	1,750	474	921	499	107	61
10	1,200	1,040	462	190	142	976	1,550	442	923	463	104	59
11	1,480	1,080	322	200	141	875	1,460	426	918	634	95	51
12	1,960	1,130	437	210	142	819	1,430	404	825	482	90	49
13	2,650	1,200	460	212	143	956	1,360	402	725	811	88	51
14	3,890	1,260	395	215	150	2,830	1,280	410	609	620	86	50
15	3,230	1,240	344	218	147	5,610	1,220	385	521	471	83	45
16	2,440	1,110	404	215	145	5,940	1,190	353	461	380	82	46
17	1,920	954	468	215	145	4,300	1,160	341	413	334	80	45
18	1,440	860	492	212	165	4,240	1,030	447	381	305	77	44
19	1,090	802	453	212	350	4,580	933	1,730	357	280	85	52
20	897	839	341	210	1,550	4,490	865	1,820	397	259	83	54
21	788	990	332	210	2,180	4,970	817	1,760	394	289	78	54
22	728	1,240	345	207	1,790	4,880	768	1,660	643	192	78	52
23	688	1,120	355	201	1,420	4,140	728	1,380	879	183	74	55
24	685	975	305	199	1,370	3,440	661	1,510	984	207	75	51
25	717	1,310	305	195	1,450	3,040	609	1,820	1,640	193	72	55
26	707	1,390	297	190	1,730	2,620	559	1,760	1,710	183	67	62
27	746	1,230	298	189	2,280	2,270	581	1,730	1,660	169	67	63
28	850	1,110	278	188	2,340	2,930	595	1,530	1,610	176	67	62
29	1,000	1,010	260	187	------	3,440	584	1,210	1,410	167	66	62
30	1,140	874	248	184	------	3,870	566	981	1,080	165	64	62
31	1,240	------	247	183	------	3,810	------	853	------	152	63	------
TOTAL	34,347	33,014	13,895	6,457	19,241	89,666	54,936	28,148	25,938	12,063	2,874	1,684
MEAN	1,108	1,100	448	208	687	2,892	1,831	908	865	389	92.7	56.1
MAX	3,890	1,390	825	250	2,340	5,940	6,330	1,820	1,710	811	164	70
MIN	238	802	247	180	141	819	559	341	357	152	63	44
CFSM	1.06	1.05	.43	.20	.66	2.76	1.75	.87	.83	.37	.09	.05
IN.	1.22	1.17	.49	.23	.68	3.18	1.95	1.00	.92	.43	.10	.06
AC-FT	68,130	65,480	27,560	12,810	38,160	177,900	109,000	55,830	51,450	23,930	5,700	3,340

CAL YR 1970 TOTAL 217,462 MEAN 596 MAX 4,290 MIN 80 CFSM .57 IN 7.72 AC-FT 431,300
WTR YR 1971 TOTAL 322,263 MEAN 883 MAX 6,330 MIN 44 CFSM .84 IN 11.44 AC-FT 639,200

PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-14	0745	8.39	4,160	4-4	0345	10.29	6,580
3-16	0415	10.10	6,330				

05422000 WAPSIPINICON RIVER NEAR DE WITT, IOWA

LOCATION.--Lat 41°46'01", long 90°32'05", in SW1/4 NE1/4 sec.6, T.80 N., R.4 E., Clinton County, on left bank 5 ft upstream from bridge on U.S. Highway 61, 0.9 mile downstream from Silver Creek, 4.0 miles south of water tower in De Witt, 6.2 miles upstream from Brophy Creek, and 18.2 miles upstream from mouth.
DRAINAGE AREA.--2,330 sq mi.
PERIOD OF RECORD.--June 1934 to current year.
GAGE.--Water-stage recorder. Datum of gage is 598.81 ft above mean sea level.
AVERAGE DISCHARGE.--37 years, 1,387 cfs (8.08 inches per year, 1,005,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 7,880 cfs Mar. 22 (gage height, 11.02 ft); maximum gage height, 11.87 ft Feb. 23 (backwater from ice); minimum daily discharge, 252 cfs Sept. 30.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Four discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1308: 1937 (M). WSP 1438: Drainage area. WSP 1708: 1951.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used July 16 to Sept. 30; stage-discharge relation affected by ice Dec. 25 to Feb. 28).

3.4	245	9.0	3,820
4.0	420	10.0	5,350
5.0	840	11.0	7,800
7.0	2,120		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,900	1,920	1,940	710	465	6,150	4,470	1,390	2,930	2,410	657	291
2	1,720	1,960	1,800	690	460	5,810	4,620	1,340	3,490	2,200	633	287
3	1,540	2,000	1,680	670	455	5,240	4,840	1,290	2,290	1,960	612	280
4	1,380	2,020	1,590	650	450	4,900	5,110	1,260	1,890	1,740	599	280
5	1,270	2,020	1,520	640	440	4,290	5,220	1,240	1,710	1,580	577	350
6	1,200	2,000	1,430	630	430	3,960	5,240	1,230	1,610	1,460	563	468
7	1,140	1,940	1,400	610	420	3,440	5,450	1,210	1,590	1,350	539	428
8	1,110	1,830	1,340	600	410	2,910	5,870	1,200	1,630	1,250	518	359
9	1,110	1,780	1,290	590	405	2,780	6,320	1,180	1,410	1,180	502	323
10	1,120	1,820	1,300	570	400	2,580	6,420	1,150	1,280	1,140	490	329
11	1,080	1,820	1,420	560	390	2,640	4,490	1,110	1,380	1,270	490	373
12	1,260	1,860	1,600	555	400	2,440	3,300	1,070	1,630	1,340	465	360
13	1,530	1,880	1,550	550	405	2,460	2,910	1,020	1,460	2,910	448	316
14	1,760	1,840	1,390	545	410	2,780	2,660	988	1,450	4,300	441	294
15	1,960	1,820	1,270	540	410	3,370	2,510	952	1,380	3,260	445	281
16	2,250	1,820	1,250	535	420	4,350	2,380	918	1,380	2,520	455	272
17	2,640	1,840	1,220	535	580	4,950	2,420	899	1,230	2,050	416	268
18	3,110	1,860	1,240	535	2,800	5,670	2,380	905	1,110	1,570	396	265
19	3,330	1,820	1,420	535	4,500	6,520	2,240	897	1,030	1,640	385	286
20	3,010	1,860	1,400	530	5,800	7,170	2,130	964	1,530	1,570	378	301
21	2,490	1,890	1,320	525	6,600	7,560	2,030	1,220	2,780	1,190	368	297
22	2,080	1,780	1,170	520	6,000	7,800	1,910	1,610	2,040	1,040	361	289
23	1,870	1,660	1,130	515	5,200	7,170	1,790	2,140	2,000	1,010	355	273
24	1,760	1,640	854	505	4,400	6,600	1,690	2,180	2,430	1,210	351	261
25	1,660	1,920	840	500	3,800	6,480	1,590	2,270	4,390	1,020	343	258
26	1,570	2,670	820	490	5,200	6,300	1,500	2,260	5,820	950	334	258
27	1,610	3,140	800	485	6,000	6,150	1,520	2,200	4,850	995	330	258
28	1,740	2,760	780	480	6,400	5,810	1,570	2,440	3,390	850	324	255
29	1,800	2,300	765	475	------	4,880	1,520	2,360	2,920	756	316	253
30	1,830	2,110	750	470	------	4,360	1,450	2,270	2,610	721	303	252
31	1,900	------	730	465	------	4,300	------	2,140	------	693	297	------
TOTAL	55,730	59,580	39,009	17,210	64,050	151,820	97,550	45,303	66,640	49,135	13,691	9,065
MEAN	1,798	1,986	1,258	555	2,288	4,897	3,252	1,461	2,221	1,585	442	302
MAX	3,330	3,140	1,940	710	6,600	7,800	6,420	2,440	5,820	4,300	657	468
MIN	1,080	1,640	730	465	390	2,440	1,450	897	1,030	693	297	252
CFSM	.77	.85	.54	.24	.98	2.10	1.40	.63	.95	.68	.19	.13
IN.	.89	.95	.62	.27	1.02	2.42	1.56	.72	1.06	.78	.22	.14
AC-FT	110,500	118,200	77,370	34,140	127,000	301,100	193,500	89,860	132,200	97,460	27,160	17,980

CAL YR 1970 TOTAL 585,588 MEAN 1,604 MAX 7,220 MIN 280 CFSM .69 IN 9.35 AC-FT 1,162,000
WTR YR 1971 TOTAL 668,783 MEAN 1,832 MAX 7,800 MIN 252 CFSM .79 IN 10.68 AC-FT 1,327,000

PEAK DISCHARGE (BASE, 6,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
3-22	0600	11.02	7,880	6-25	2145	10.55	6,520
4-10	0330	10.57	6,580				

05449000 EAST BRANCH IOWA RIVER NEAR KLEMME, IOWA

LOCATION.--Lat 43°00'31", long 93°37'42", in NE1/4 NW 1/4 sec.36, T.95 N., R.24 W., Hancock County, on left bank 15 ft downstream from bridge on county highway B55, 1.2 miles west of Chicago Rock Island and Pacific Railway crossing in Klemme, 1.5 miles upstream from Drainage ditch 9, 18.2 miles upstream from confluence with West Branch Iowa River, and at mile 345.3.
DRAINAGE AREA.--133 sq mi.
PERIOD OF RECORD.--April 1948 to current year. Prior to October 1958, published as East Fork Iowa River near Klemme.
GAGE.--Water-stage recorder. Datum of gage is 1,179.33 ft above mean sea level. Apr. 1, 1948 to Sept. 30, 1955, nonrecording gage at site 0.6 mile upstream at datum 0.80 ft higher. Oct. 1, 1955 to Sept. 30, 1969 at present site at datum 0.31 ft lower.
AVERAGE DISCHARGE.--23 years, 54.0 cfs (5.51 inches per year, 39,120 acre-ft per year); median of yearly mean discharges, 35 cfs (3.6 inches per year, 25,400 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,030 cfs Mar. 31 (gage height, 8.22 ft); maximum gage height, 8.62 ft Mar. 16 (backwater from ice); minimum daily discharge, 2.9 cfs Feb. 9.
Period of record: Maximum discharge, 5,960 cfs June 19, 1954 (gage height, 11.2 ft, from floodmark, site and datum then in use); maximum gage height, 10.67 ft Sept. 6, 1965 (backwater from ice); minimum daily discharge, 0.2 cfs Feb. 22-26, 1959.
Flood in June 1944 reached a stage of about 10 ft, from information by local residents, former site and datum.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Mar. 30 to Apr. 2; stage-discharge relation affected by ice Nov. 14, 15, 22-28, Dec. 2 to Mar. 29).

2.5	3.4	3.0	28	6.0	368
2.6	6.3	3.5	72	7.0	540
2.7	10	4.0	122	8.0	815

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	14	32	11	3.9	108	917	47	33	38	10	6.3
2	5.3	15	32	12	3.8	93	600	43	29	34	11	5.8
3	5.2	18	31	12	3.7	84	437	40	28	29	9.6	5.3
4	4.4	22	26	6.4	3.6	74	352	42	26	31	9.8	5.2
5	4.8	23	20	3.9	3.6	68	305	42	26	31	8.6	5.2
6	5.8	22	18	4.5	3.5	64	264	42	33	31	9.0	5.4
7	9.1	20	23	4.8	3.4	61	246	38	592	30	8.6	4.6
8	18	19	23	5.0	3.1	60	239	37	724	28	9.7	5.9
9	26	45	23	5.0	2.9	60	199	38	501	26	8.8	15
10	25	60	20	5.1	3.0	58	164	36	318	25	10	12
11	19	51	18	5.4	3.1	57	152	35	195	36	8.5	7.6
12	15	43	20	5.4	3.2	90	132	31	134	41	7.8	5.6
13	13	40	20	5.3	3.1	168	113	33	118	34	8.5	5.3
14	12	37	19	5.1	3.1	330	103	32	101	29	7.2	5.2
15	10	34	20	5.0	3.1	440	98	30	81	25	6.8	4.0
16	8.9	34	20	4.8	3.2	460	93	29	70	22	8.3	4.5
17	8.9	32	20	4.8	3.4	420	86	34	68	20	7.7	5.8
18	8.9	30	19	4.7	20	450	79	42	78	19	6.8	5.4
19	8.9	30	16	4.6	86	480	75	47	66	19	11	5.9
20	9.2	32	18	4.6	220	390	71	51	72	19	8.8	6.1
21	8.5	36	19	4.7	300	310	67	46	56	14	6.9	5.8
22	8.5	30	20	4.9	300	240	60	43	53	14	6.5	5.6
23	9.0	22	15	4.9	270	204	59	43	46	17	7.6	7.2
24	8.3	29	12	4.9	240	186	55	44	45	13	7.4	5.9
25	8.0	32	12	4.7	204	168	50	39	39	12	7.4	6.4
26	8.4	29	12	4.7	180	156	47	35	36	14	6.0	7.2
27	17	27	13	4.7	154	148	51	33	29	14	5.9	5.8
28	18	26	12	4.7	128	250	52	33	27	16	6.0	5.4
29	16	26	12	4.5	------	400	45	31	25	13	5.4	5.9
30	16	27	12	4.3	------	707	44	30	37	13	5.5	4.7
31	15	------	11	4.1	------	930	------	34	------	11	6.6	------
TOTAL	355.1	905	588	170.5	2,158.7	7,714	5,255	1,180	3,686	718	247.7	186.0
MEAN	11.5	30.2	19.0	5.50	77.1	249	175	38.1	123	23.2	7.99	6.20
MAX	26	60	32	12	300	930	917	51	724	41	11	15
MIN	4.4	14	11	3.9	2.9	57	44	29	25	11	5.4	4.0
CFSM	.09	.23	.14	.04	.58	1.87	1.32	.29	.92	.17	.06	.05
IN.	.10	.25	.16	.05	.60	2.16	1.47	.33	1.03	.20	.07	.05
AC-FT	704	1,800	1,170	338	4,280	15,300	10,420	2,340	7,310	1,420	491	369

CAL YR 1970 TOTAL 13,399.1 MEAN 36.7 MAX 732 MIN 4.4 CFSM .28 IN 3.75 AC-FT 26,580
WTR YR 1971 TOTAL 23,164.0 MEAN 63.5 MAX 930 MIN 2.9 CFSM .48 IN 6.48 AC-FT 45,950

PEAK DISCHARGE (BASE, 700 CFS.--Mar. 31 (2330) 1,030 cfs (8.22 ft); June 8 (0215) 790 cfs (7.93 ft).

05449500 IOWA RIVER NEAR ROWAN, IOWA

LOCATION.--Lat 42°45'36", long 93°37'23", in NW1/4 NE1/4 sec.25, T.92 N., R.24 W., Wright County, on left bank 10 ft downstream from bridge on county highway C38, 0.9 mile downstream from Drainage ditch 123, 3.8 miles northwest of Rowan, 10.7 miles downstream from confluence of East and West Branches, and at mile 316.4.
DRAINAGE AREA.--429 sq mi.
PERIOD OF RECORD.--October 1940 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,143.35 ft above mean sea level. Prior to Oct. 14, 1948, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--31 years, 182 cfs (5.76 inches per year, 131,900 acre-ft per year); median of yearly mean discharges, 130 cfs (4.1 inches per year, 94,200 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 2,410 cfs Apr. 1 (gage height, 10.67 ft); maximum gage height, 11.05 ft Mar. 16 (backwater from ice); minimum daily discharge, 13 cfs Jan. 6.
Period of record: Maximum discharge, 8,460 cfs June 21, 1954 (gage height, 14.88 ft); minimum daily, 2.9 cfs Jan. 21-23, 1959.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical and suspended-sediment analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1308; 1942-43 (M). WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23-28, Dec. 4 to Mar. 28).

3.1	18	5.0	220	9.0	1,210
3.5	50	6.0	378	10.0	1,860
4.0	99	8.0	835	11.0	2,790

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	67	112	41	22	300	2,290	175	177	182	63	27
2	24	65	113	42	21	260	2,320	173	167	159	59	27
3	22	67	105	36	20	240	1,930	164	139	145	54	27
4	22	75	89	25	20	212	1,550	158	122	156	52	26
5	22	84	78	15	20	190	1,200	159	114	171	49	27
6	22	85	66	13	20	176	1,020	158	111	177	48	25
7	24	81	90	19	19	164	880	150	590	174	46	24
8	46	77	84	22	17	160	770	141	1,270	153	45	23
9	97	94	86	23	16	166	685	137	1,490	140	43	37
10	118	153	72	22	17	180	583	133	1,340	137	43	59
11	97	163	64	24	18	230	499	129	949	167	41	43
12	81	153	78	25	18	300	458	126	576	168	41	35
13	67	137	72	27	17	450	407	119	373	151	37	31
14	59	127	72	28	17	680	363	118	308	128	36	28
15	53	117	76	27	17	1,100	337	113	274	111	36	27
16	48	114	77	26	18	1,500	330	110	236	99	35	25
17	47	114	78	26	19	1,500	317	107	208	90	33	24
18	43	108	72	26	62	1,400	293	120	248	84	33	26
19	42	109	61	25	200	1,240	275	140	320	80	43	28
20	41	147	68	25	500	1,040	263	158	398	76	44	29
21	41	165	72	26	720	900	254	159	295	73	40	27
22	40	157	74	27	780	760	237	150	232	68	35	28
23	40	82	58	27	820	660	221	145	197	128	32	32
24	41	106	46	27	820	560	210	150	171	123	32	31
25	41	122	46	27	700	470	197	145	156	98	33	31
26	40	110	47	27	560	420	188	133	143	81	30	32
27	61	100	46	27	420	400	193	122	128	74	30	32
28	76	94	42	26	350	890	195	116	116	91	29	32
29	74	102	40	25	------	1,340	189	112	111	89	28	31
30	70	106	40	24	------	1,760	177	108	167	76	27	40
31	68	------	41	22	------	2,060	------	111	------	68	26	------
TOTAL	1,592	3,281	2,165	802	6,248	21,708	18,831	4,239	11,126	3,717	1,223	914
MEAN	51.4	109	69.8	25.9	223	700	628	137	371	120	39.5	30.5
MAX	118	165	113	42	820	2,060	2,320	175	1,490	182	63	59
MIN	22	65	40	13	16	160	177	107	111	68	26	23
CFSM	.12	.25	.16	.06	.52	1.63	1.46	.32	.86	.28	.09	.07
IN.	.14	.28	.19	.07	.54	1.88	1.63	.37	.96	.32	.11	.08
AC-FT	3,160	6,510	4,290	1,590	12,390	43,060	37,350	8,410	22,070	7,370	2,430	1,810

CAL YR 1970 TOTAL 45,076 MEAN 123 MAX 2,450 MIN 20 CFSM .29 IN 3.91 AC-FT 89,410
WTR YR 1971 TOTAL 75,846 MEAN 208 MAX 2,320 MIN 13 CFSM .48 IN 6.58 AC-FT 150,400

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
3-16	--	--	*	1,530	6-9	1415	9.50	1,510
4-1	2330	10.67		2,410				

* About

05451500 IOWA RIVER AT MARSHALLTOWN, IOWA

LOCATION.--Lat 42°04'00", long 92°54'18", in SE1/4 SE1/4 sec.23, T.84 N., R.18 W., Marshall County, on right bank in city park in Marshalltown, 600 ft upstream from Burnett Creek, 900 ft downstream from bridge on State Highway 14, 2.0 miles upstream from Linn Creek, and at mile 222.6.
DRAINAGE AREA.--1,564 sq mi., including that of Burnett Creek.
PERIOD OF RECORD.--October 1902 to September 1903, October 1914 to September 1927, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 853.10 ft above mean sea level. See WSP 1728 for history of changes prior to Sept. 21, 1934.
AVERAGE DISCHARGE.--53 years (1902-3, 1914-27, 1932-71), 731 cfs (6.35 inches per year, 529,600 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 11,700 cfs Mar. 15 (gage height, 17.22 ft); minimum daily, 81 cfs Sept. 12.
Period of record: Maximum discharge, 42,000 cfs June 4, 1918 (gage height, 17.74 ft, from floodmark), from rating curve extended above 19,000 cfs on basis of velocity-area study; maximum gage height, 19.37 ft July 9, 1969; minimum daily discharge, 9 cfs Jan. 9, 10, 1949.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1915-18, 1919 (M), 1920, 1921-23 (M), 1924-27, 1933, 1934 (M), 1936, 1938, 1947 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 25-28, Dec. 6-10, 12-14, 16-19, Dec. 21 to Mar. 3).

Oct. 1 to Feb. 20				Feb. 21 to Sept. 30			
5.9	140	10.0	1,880	5.8	77	13.0	4,100
6.4	270	13.0	4,100	6.7	300	15.0	6,600
7.0	460	15.0	6,600	8.0	730	17.0	11,000
8.0	880			10.0	1,700		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	625	732	300	160	2,900	3,480	632	746	1,040	270	94
2	270	588	678	280	160	2,600	3,580	621	676	1,100	265	94
3	246	563	642	260	160	2,100	3,660	589	641	908	234	90
4	228	560	610	230	155	1,570	3,660	572	652	770	218	94
5	210	544	598	210	155	1,390	3,400	578	620	1,370	207	144
6	208	541	560	200	155	1,100	2,810	564	599	1,600	196	125
7	205	534	620	190	150	949	2,360	545	742	1,780	188	105
8	237	527	660	180	155	949	2,030	538	913	1,920	182	92
9	1,420	636	610	180	155	944	1,790	516	985	1,600	177	85
10	2,060	769	560	180	160	935	1,580	501	1,100	1,160	169	85
11	1,590	768	540	180	160	954	1,470	484	1,280	1,270	162	83
12	1,300	800	580	180	165	1,560	1,400	470	1,440	1,280	154	81
13	1,110	800	560	180	170	3,250	1,290	448	2,250	1,120	149	82
14	974	790	520	190	170	6,870	1,200	436	1,760	900	149	98
15	844	745	490	190	175	10,800	1,140	436	1,300	758	144	91
16	750	709	480	190	180	6,580	1,070	418	967	655	139	87
17	682	700	470	180	180	5,610	1,020	400	895	582	134	86
18	632	678	460	180	300	6,030	956	767	750	512	130	84
19	594	664	430	180	2,500	6,450	929	1,720	758	462	134	91
20	558	862	400	180	6,500	5,200	883	1,420	722	418	139	94
21	538	1,110	400	180	6,000	4,910	839	1,130	690	394	137	92
22	530	1,260	410	180	4,800	4,720	821	967	680	370	132	87
23	512	1,020	410	180	3,500	3,800	784	895	690	352	130	86
24	512	862	410	170	2,800	3,290	747	1,580	627	334	125	85
25	512	820	400	170	2,400	2,560	708	1,670	550	320	118	88
26	495	850	390	170	2,400	2,190	676	1,010	498	325	122	93
27	495	880	380	170	3,400	2,080	686	882	459	334	113	93
28	711	900	360	170	3,200	2,730	702	794	424	325	107	90
29	841	790	350	170	------	2,850	661	730	394	302	105	85
30	785	754	340	160	------	2,810	635	698	584	275	98	85
31	705	------	320	160	------	3,060	------	666	------	270	96	------
TOTAL	21,048	22,649	15,370	5,920	40,565	103,741	46,967	23,677	25,392	24,806	4,823	2,769
MEAN	679	755	496	191	1,449	3,346	1,566	764	846	800	156	92.3
MAX	2,060	1,260	732	300	6,500	10,800	3,660	1,720	2,250	1,920	270	144
MIN	205	527	320	160	150	935	635	400	394	270	96	81
CFSM	.43	.48	.32	.12	.93	2.14	1.00	.49	.54	.51	.10	.06
IN.	.50	.54	.37	.14	.96	2.47	1.12	.56	.60	.59	.11	.07
AC-FT	41,750	44,920	30,490	11,740	80,460	205,800	93,160	46,960	50,370	49,200	9,570	5,490

CAL YR 1970 TOTAL 205,223 MEAN 562 MAX 4,610 MIN 98 CFSM .36 IN 4.88 AC-FT 407,100
WTR YR 1971 TOTAL 337,727 MEAN 925 MAX 10,800 MIN 81 CFSM .59 IN 8.03 AC-FT 669,900

PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-20	--	--	* 7,000	3-19	1015	15.11	6,780
3-15	1300	17.22	11,700				

* About

05451700 TIMBER CREEK NEAR MARSHALLTOWN, IOWA

LOCATION.--Lat 42°00'25", long 92°51'15", in SE1/4 SW1/4 sec.8, T.83 N., R.17 W., Marshall County, on left bank 20 ft downstream from bridge on U.S. Highway 30, 3.5 miles upstream from mouth, and 4.1 miles southeast of court house in Marshalltown.
DRAINAGE AREA.--118 sq mi.
PERIOD OF RECORD.--October 1949 to current year.
GAGE.--Water-stage recorder. Datum of gage is 849.44 ft above mean sea level.
AVERAGE DISCHARGE.--22 years, 57.3 cfs (6.59 inches per year, 41,510 acre-ft per year); median of yearly mean discharges, 64 cfs (7.4 inches per year, 46,400 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,200 cfs Feb. 20 (gage height, 15.17 ft, backwater from ice); minimum daily, 2.3 cfs Sept. 30.
Period of record: Maximum discharge, 5,940 cfs May 14, 1970 (gage height, 16.66 ft); no flow July 24-26, Oct. 4-12, 1956.
Flood in June 1947 reached a stage of 16.8 ft (discharge, 5,700 cfs).
REMARKS.--Records good except those for winter periods, which are poor.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1708: 1950-55, 1957-59.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 1-8; stage-discharge relation affected by ice Nov. 24, Dec. 15, Dec. 20 to Mar. 14).

Oct. 1 to 8		Oct. 9 to Sept. 30			
3.0	38	1.8	1.4	4.0	128
3.3	57	1.9	2.6	5.0	232
		2.0	4.3	7.0	477
		2.2	9.1	10.0	990
		2.5	20	12.0	1,560
		3.0	47	13.0	2,080

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	83	71	49	28	640	90	45	51	34	15	3.9
2	51	81	63	48	28	440	75	43	36	58	18	4.3
3	47	81	62	47	27	280	70	41	34	32	15	4.1
4	44	78	59	46	26	210	68	40	32	35	13	6.5
5	43	75	57	45	25	270	65	40	31	46	12	14
6	42	74	62	44	24	190	63	39	32	33	12	8.8
7	41	71	65	43	24	130	62	39	34	30	11	5.0
8	57	69	62	42	23	120	61	42	31	30	11	3.9
9	1,330	98	59	43	24	120	58	37	29	31	11	3.6
10	388	119	56	44	24	110	55	36	28	68	9.4	4.1
11	261	94	62	44	24	330	57	36	28	120	8.3	4.1
12	216	88	57	44	24	500	57	34	32	44	8.3	4.3
13	184	86	54	43	24	790	55	33	530	34	8.3	4.2
14	162	81	60	43	25	900	51	32	87	30	7.8	3.9
15	144	77	66	42	25	395	50	32	63	28	8.1	3.3
16	132	76	58	41	25	208	52	30	53	26	7.5	3.3
17	126	75	55	40	26	163	63	31	46	25	6.5	3.8
18	117	73	53	40	720	209	54	55	44	24	6.8	4.2
19	110	74	48	39	1,500	217	52	64	42	22	6.5	5.3
20	104	102	56	38	1,900	180	49	43	39	21	6.8	4.3
21	98	92	54	38	1,100	258	48	37	36	21	6.3	3.5
22	106	85	52	37	500	171	46	35	34	20	6.3	3.2
23	112	82	48	37	350	119	44	36	33	20	6.1	3.3
24	114	92	50	36	260	105	43	137	31	21	5.4	3.7
25	108	87	49	35	200	97	41	100	30	18	5.2	3.9
26	101	83	48	34	560	90	40	56	30	17	4.7	4.1
27	101	72	48	33	1,600	90	64	49	29	16	4.5	4.5
28	94	68	47	32	720	132	57	45	26	17	4.5	3.1
29	89	70	48	31	------	102	48	42	24	15	4.7	2.6
30	90	67	49	30	------	94	45	40	48	15	5.0	2.3
31	87	------	50	30	------	95	------	39	------	16	4.1	------
TOTAL	4,753	2,453	1,728	1,238	9,836	7,755	1,683	1,408	1,623	967	259.1	133.1
MEAN	153	81.8	55.7	39.9	351	250	56.1	45.4	54.1	31.2	8.36	4.44
MAX	1,330	119	71	49	1,900	900	90	137	530	120	18	14
MIN	41	67	47	30	23	90	40	30	24	15	4.1	2.3
CFSM	1.30	.69	.47	.34	2.97	2.12	.48	.38	.46	.26	.07	.04
IN.	1.50	.77	.54	.39	3.10	2.44	.53	.44	.51	.30	.08	.04
AC-FT	9,430	4,870	3,430	2,460	19,510	15,380	3,340	2,790	3,220	1,920	514	264

CAL YR 1970 TOTAL 31,938.0 MEAN 87.5 MAX 3,130 MIN 6.4 CFSM .74 IN 10.07 AC-FT 63,350
WTR YR 1971 TOTAL 33,836.2 MEAN 92.7 MAX 1,900 MIN 2.3 CFSM .79 IN 10.67 AC-FT 67,110

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.		DISCHARGE
10-9	1330	12.33		1,700	3-13	--	--	*	1,300
2-20	--	--	*	2,200	6-13	1200	10.21		1,050
2-27	--	--	*	2,100					

* About

05451900 RICHLAND CREEK NEAR HAVEN, IOWA

LOCATION.--Lat 41°53'58", long 92°28'27", in SE1/4 NE1/4 sec.21, T.82 N., R.14 W., Tama County, on right bank 5 ft upstream from bridge on county highway, 0.6 mile northeast of Haven, and 2.8 miles upstream from mouth.
DRAINAGE AREA.--56.1 sq mi.
PERIOD OF RECORD.--October 1949 to current year.
GAGE.--Water-stage recorder. Datum of gage is 798.69 ft above mean sea level.
AVERAGE DISCHARGE.--22 years, 29.4 cfs (7.12 inches per year, 21,300 acre-ft per year); median of yearly mean discharges, 27 cfs (6.5 inches per year, 19,600 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 1,400 cfs Feb. 27 (gage height, 9.42 ft); maximum gage height, 10.21 ft Feb. 19 (backwater from ice); minimum daily discharge, 0.48 cfs Sept. 16, 17.
Period of record: Maximum discharge, 3,650 cfs Mar. 30, 1960 (gage height, 12.39 ft); minimum daily, 0.1 cfs on several days in 1949, 1953-54, 1956.
Flood in June 1918 reached a stage of 14.3 ft, present gage datum (discharge not determined).
REMARKS.--Records good except those for winter period, which are fair.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1708: 1950-55, 1956 (M), 1957, 1958 (M), 1959.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting control method used Mar. 6 to June 12; stage-discharge relation affected by ice Nov. 23 to Dec. 2, Dec. 6-8, 14, 15, 19, 20, Jan. 4-13, 16, 17, 19-22, 24, 25, Jan. 27 to Mar. 10, Mar. 18, 19, 21-24).

Oct. 1 to June 13 (0845)				June 13 (0900) to Sept. 30			
.4	8.4	2.0	146	-0.2	0	.7	31
.6	18	3.0	260	0.0	4.9	1.3	74
.9	36	5.0	537	.1	7.5	2.0	140
1.4	79	8.0	1,170	.3	14	3.1	266

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	52	37	22	12	230	26	17	18	14	9.5	1.2
2	36	52	35	23	12	150	24	15	17	13	10	1.4
3	32	51	37	15	11	60	23	15	17	13	9.0	1.0
4	29	49	33	13	11	54	22	15	16	22	8.0	2.9
5	30	47	34	12	11	48	22	15	15	20	8.1	9.4
6	30	46	36	12	11	45	21	16	15	15	8.9	4.2
7	29	43	33	12	11	35	21	18	16	15	7.8	1.9
8	49	43	30	13	10	42	21	20	14	14	7.5	1.9
9	804	83	29	21	11	30	20	16	13	13	7.5	3.1
10	194	76	28	21	11	30	20	15	12	151	6.7	2.9
11	138	64	31	20	11	91	21	15	13	199	5.9	1.7
12	119	55	28	20	11	85	22	14	13	35	5.7	1.2
13	101	52	27	20	11	90	20	14	258	27	5.7	1.2
14	87	48	31	20	11	91	19	13	33	22	5.2	1.0
15	79	45	30	19	11	79	18	12	27	21	5.2	.72
16	75	43	28	19	11	47	19	12	23	19	4.6	.48
17	61	42	27	19	11	42	22	12	21	18	4.2	.48
18	62	41	28	18	470	47	19	17	23	17	3.6	1.0
19	63	41	30	18	900	45	20	57	20	16	4.2	2.9
20	61	45	28	18	1,000	42	19	20	18	16	4.2	2.9
21	63	43	26	17	160	44	18	17	17	15	3.6	1.7
22	85	40	27	17	80	35	17	16	17	14	3.4	1.4
23	75	44	27	17	44	33	16	18	17	15	3.1	1.4
24	72	50	22	16	42	32	16	125	15	15	2.6	1.0
25	71	47	26	15	40	30	15	31	15	15	2.4	2.4
26	65	42	25	14	500	29	15	27	15	15	1.9	3.6
27	63	39	22	14	730	30	23	25	14	14	1.9	2.9
28	65	37	20	13	280	30	19	23	13	14	1.7	2.2
29	59	39	21	13	------	27	17	21	13	13	1.2	1.7
30	58	36	22	13	------	26	17	20	19	11	1.2	1.4
31	54	------	22	12	------	28	------	20	------	10	1.2	------
TOTAL	2,848	1,435	880	516	4,434	1,727	592	691	757	831	155.7	63.18
MEAN	91.9	47.8	28.4	16.6	158	55.7	19.7	22.3	25.2	26.8	5.02	2.11
MAX	804	83	37	23	1,000	230	26	125	258	199	10	9.4
MIN	29	36	20	12	10	26	15	12	12	10	1.2	.48
CFSM	1.64	.85	.51	.30	2.82	.99	.35	.40	.45	.48	.09	.04
IN.	1.89	.95	.58	.34	2.94	1.15	.39	.46	.50	.55	.10	.04
AC-FT	5,650	2,850	1,750	1,020	8,790	3,430	1,170	1,370	1,500	1,650	309	125

CAL YR 1970 TOTAL 16,435.20 MEAN 45.0 MAX 1,010 MIN 3.7 CFSM .80 IN 10.90 AC-FT 32,600
WTR YR 1971 TOTAL 14,929.88 MEAN 40.9 MAX 1,000 MIN .48 CFSM .73 IN 9.90 AC-FT 29,610

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	0900	7.71	1,080	2-27	--	--	* 1,400
2-20	--	--	* 1,200				

* About

05452000 SALT CREEK NEAR ELBERON, IOWA

LOCATION.--Lat 41°57'51", long 92°18'47", in NW1/4 NW1/4 sec.36, T.83 N., R.13 W., Tama County, near center of span on downstream side of bridge on U. S. Highway 30, 2.0 miles upstream from Hog Run, 3.0 miles south of Elberon, and 9.0 miles upstream from mouth.
DRAINAGE AREA.--201 sq mi.
PERIOD OF RECORD.--October 1945 to current year.
GAGE.--Water-stage recorder. Datum of gage is 781.58 ft above mean sea level (Iowa Highway Commission bench mark). Prior to Oct. 15, 1945, and June 14, 1947 to Feb. 10, 1949, nonrecording gage on upstream side of bridge at present datum.
AVERAGE DISCHARGE.--26 years, 117 cfs (7.90 inches per year, 84,770 acre-ft per year); median of yearly mean discharges, 100 cfs (6.8 inches per year, 72,400 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,500 cfs Mar. 14 (gage height, 14.55 ft); maximum gage height, 16.43 ft Feb. 20 (backwater from ice); minimum daily discharge, 8.3 cfs Sept. 16.
Period of record: Maximum discharge observed, 35,000 cfs June 13, 1947 (gage height, 17.6 ft) from rating curve extended above 17,000 cfs; maximum gage height, 17.78 ft July 18, 1969; minimum daily discharge, 2.4 cfs Jan. 16-29, 1954.
Flood of June 16, 1944 reached a stage of 19.9 ft, from floodmark at downstream side of bridge (discharge, about 30,000 cfs).
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1946.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	136	104	69	36	440	161	81	127	37	24	11
2	105	133	90	69	35	330	132	73	78	33	28	10
3	93	131	92	66	34	230	121	69	69	31	24	10
4	86	126	81	45	33	160	118	70	63	38	22	12
5	83	122	84	40	32	140	112	71	60	49	21	21
6	80	120	66	44	31	110	109	68	64	36	21	16
7	78	113	100	50	31	90	108	67	71	33	20	11
8	86	111	97	54	30	95	106	73	59	53	20	10
9	1,500	125	90	55	31	88	103	63	54	49	22	12
10	602	132	81	56	31	83	96	60	51	261	19	11
11	297	121	95	57	32	150	100	59	51	639	17	10
12	244	117	83	57	33	300	105	56	50	132	17	9.6
13	210	113	74	56	33	1,200	98	54	184	96	17	9.5
14	186	107	69	56	34	2,200	91	52	81	73	16	9.1
15	166	105	93	55	34	880	90	50	68	62	16	8.5
16	156	106	97	54	35	210	90	48	65	53	15	8.3
17	149	105	86	54	35	180	98	48	57	47	15	8.4
18	141	102	80	53	250	210	90	61	57	43	14	8.6
19	133	103	68	52	1,500	200	93	197	55	40	15	11
20	128	131	83	51	2,000	190	91	89	50	36	15	12
21	124	123	95	50	1,600	230	90	72	46	35	14	10
22	145	111	84	49	660	250	83	65	44	32	13	9.3
23	148	74	69	48	370	160	78	66	43	32	13	9.0
24	154	113	67	47	280	150	74	230	41	31	12	9.2
25	154	117	72	45	220	140	71	141	39	30	12	10
26	145	116	68	44	560	130	69	116	39	31	11	12
27	153	111	68	43	2,100	147	98	108	38	27	12	12
28	167	103	62	42	1,200	262	91	87	34	29	12	10
29	159	102	60	40	------	175	80	77	32	26	11	9.6
30	154	94	64	39	------	157	76	72	44	25	11	9.6
31	145	------	67	38	------	160	------	72	------	24	11	------
TOTAL	6,282	3,423	2,489	1,578	11,300	9,447	2,922	2,515	1,814	2,163	510	319.7
MEAN	203	114	80.3	50.9	404	305	97.4	81.1	60.5	69.8	16.5	10.7
MAX	1,500	136	104	69	2,100	2,200	161	230	184	639	28	21
MIN	78	74	60	38	30	83	69	48	32	24	11	8.3
CFSM	1.01	.57	.40	.25	2.01	1.52	.48	.40	.30	.35	.08	.05
IN.	1.16	.63	.46	.29	2.09	1.75	.54	.47	.34	.40	.09	.06
AC-FT	12,460	6,790	4,940	3,130	22,410	18,740	5,800	4,990	3,600	4,290	1,010	634

CAL YR 1970 TOTAL 48,016.0 MEAN 132 MAX 4,580 MIN 16 CFSM .66 IN 8.89 AC-FT 95,240
WTR YR 1971 TOTAL 44,762.7 MEAN 123 MAX 2,200 MIN 8.3 CFSM .61 IN 8.28 AC-FT 88,790

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	1815	13.63	1,940	2-27	--	--	* 2,250
2-20	--	--	* 2,400	3-14	--	--	* 2,500

* About

05452200 WALNUT CREEK NEAR HARTWICK, IOWA

LOCATION.--Lat 41°50'06", long 92°23'10", in SE1/4 SW1/4 sec.8, T.81 N., R.13 W., Poweshiek County, on left bank 5 ft upstream from bridge on county highway V21, 1.2 miles downstream from North Walnut Creek, 4.0 miles northwest of Hartwick, and 6.5 miles upstream from mouth.
DRAINAGE AREA.--70.9 sq mi.
PERIOD OF RECORD.--October 1949 to current year.
GAGE.--Water-stage recorder. Datum of gage is 786.59 ft above mean sea level.
AVERAGE DISCHARGE.--22 years, 37.2 cfs (7.13 inches per year, 26,950 acre-ft per year); median of yearly mean discharges, 34 cfs (6.5 inches per year, 24,600 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 2,860 cfs Oct. 9 (gage height, 14.72 ft); maximum gage height, 14.86 ft Feb. 19 (backwater from ice); minimum daily discharge, 1.0 cfs Sept. 23, 24, 29.
Period of record: Maximum discharge, 4,930 cfs Sept. 3, 1958 (gage height, 15.67 ft), from rating curve extended above 2,600 cfs on basis of contracted-opening and flow-over-embankment measurement of peak flow; no flow at times for most years.
Flood in June 1947 reached a stage of 17.7 ft, from information by local residents (discharge not determined).
REMARKS.--Records good except those for winter periods, which are poor.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1558: 1950 (P), 1951-57.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Aug. 30 to Sept. 30; stage-discharge relation affected by ice Nov. 23-26, Dec. 4-8, Dec. 16 to Mar. 25).

Oct. 1 to Feb. 26				Feb. 27 to Sept. 30			
3.7	13	7.0	293	3.38	.95	4.5	28
4.0	26	9.0	545	3.5	1.9	5.0	54
4.5	54	11.0	875	3.6	3.1	6.0	135
5.0	91	13.0	1,450	3.8	6.4	7.0	248
				4.0	11	9.0	540

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	76	48	40	20	170	31	23	22	12	5.7	1.4
2	65	73	42	38	19	110	29	21	20	12	6.0	1.4
3	55	70	43	36	18	56	28	20	19	11	6.1	2.0
4	52	67	45	33	18	54	27	20	19	26	5.6	3.6
5	50	64	47	29	17	52	26	20	18	18	5.3	4.4
6	48	62	48	26	16	40	26	30	18	13	5.2	1.4
7	45	57	50	22	16	36	26	34	18	13	4.8	1.4
8	111	56	44	23	16	34	26	44	19	11	4.5	1.3
9	1,190	90	41	23	15	30	25	33	15	11	4.4	1.4
10	252	85	39	23	16	38	25	29	15	252	3.9	1.5
11	180	73	43	24	16	60	26	27	17	83	3.5	1.3
12	148	68	42	24	16	70	27	24	17	27	3.5	1.2
13	128	65	39	25	16	84	25	22	104	20	3.5	1.2
14	110	59	37	25	16	130	24	21	30	16	3.2	1.1
15	99	56	36	25	16	60	24	20	27	14	3.2	1.1
16	91	56	36	25	17	40	24	18	21	13	3.0	1.1
17	86	55	37	25	17	37	28	18	18	12	3.0	1.1
18	80	53	40	26	500	44	25	125	19	12	3.0	1.2
19	75	52	43	26	1,000	44	25	113	16	12	2.8	1.7
20	71	64	45	26	1,100	38	24	41	15	11	2.5	1.5
21	69	58	44	26	400	42	23	31	14	11	2.5	1.1
22	143	50	43	26	200	37	22	28	14	10	2.3	1.1
23	118	54	43	26	170	32	21	32	14	10	2.0	1.0
24	110	60	43	26	140	37	21	105	13	10	2.0	1.0
25	97	58	43	26	110	33	20	40	13	9.9	2.0	1.4
26	90	52	42	25	800	32	19	35	13	10	1.9	1.5
27	96	48	41	24	450	34	30	31	12	10	1.8	1.3
28	116	46	41	23	200	33	25	29	12	10	1.8	1.1
29	97	48	41	22	------	31	23	27	11	8.2	1.6	1.0
30	91	46	41	21	------	30	22	25	14	6.5	1.6	1.1
31	82	------	40	21	------	32	------	24	------	6.2	1.4	------
TOTAL	4,116	1,821	1,307	810	5,355	1,600	747	1,110	597	700.8	103.6	43.9
MEAN	133	60.7	42.2	26.1	191	51.6	24.9	35.8	19.9	22.6	3.34	1.46
MAX	1,190	90	50	40	1,100	170	31	125	104	252	6.1	4.4
MIN	45	46	36	21	15	30	19	18	11	6.2	1.4	1.0
CFSM	1.88	.86	.60	.37	2.69	.73	.35	.50	.28	.32	.05	.02
IN.	2.16	.96	.69	.42	2.81	.84	.39	.58	.31	.37	.05	.02
AC-FT	8,160	3,610	2,590	1,610	10,620	3,170	1,480	2,200	1,180	1,390	205	87

CAL YR 1970 TOTAL 21,791.4 MEAN 59.7 MAX 1,500 MIN 4.1 CFSM .84 IN 11.43 AC-FT 43,220
WTR YR 1971 TOTAL 18,311.3 MEAN 50.2 MAX 1,190 MIN 1.0 CFSM .71 IN 9.61 AC-FT 36,320

PEAK DISCHARGE (BASE, 1,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	0630	14.72	2,860	2-26	--	--	* 1,000
2-19	--	--	* 1,200	7-10	1615	11.92	1,110

* About

05453000 BIG BEAR CREEK AT LADORA, IOWA

LOCATION.--Lat 41°44'58", long 92°10'55", in SW1/4 SW1/4 sec.7, T.80 N., R.11 W., Iowa County, on left bank 10 ft downstream from bridge on county highway V52, 0.4 mile south of Ladora, 1.2 miles downstream from Coats Creek, 2.8 miles upstream from Little Bear Creek, and 8.1 miles upstream from mouth.
DRAINAGE AREA.--189 sq mi.
PERIOD OF RECORD.--October 1945 to current year. Prior to October 1966, published as Bear Creek at Ladora.
GAGE.--Water-stage recorder. Datum of gage is 754.94 ft above mean sea level. Prior to June 26, 1946 nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--26 years, 107 cfs (7.69 inches per year, 77,520 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,360 cfs Feb. 26 (gage height, 12.45 ft); maximum gage height, 13.89 ft Feb. 20 (backwater from ice); minimum daily discharge, 5.9 cfs Sept. 15.
Period of record: Maximum discharge, 10,500 cfs Mar. 30, 1960 (gage height, 14.60 ft); no flow Jan. 22 to Feb. 8, 1956.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Two discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1308: 1947 (M). WSP 1438: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	187	211	126	108	51	398	73	54	75	40	27	8.1
2	170	201	114	110	49	322	68	50	66	30	27	7.9
3	143	190	114	100	48	251	68	47	58	28	25	8.1
4	134	179	108	90	46	191	66	46	57	44	24	13
5	130	169	108	82	44	216	62	47	54	68	22	33
6	127	163	120	74	43	185	60	56	50	37	21	18
7	120	153	130	67	41	151	57	59	57	33	20	10
8	133	147	120	60	40	122	57	75	51	32	20	8.5
9	2,850	180	109	61	40	117	57	57	47	28	19	9.8
10	926	275	104	62	41	117	54	52	45	580	18	10
11	604	195	121	63	41	206	56	50	45	705	16	8.1
12	478	180	110	64	41	279	65	48	47	158	15	7.1
13	393	168	105	65	42	413	58	46	737	114	15	7.0
14	328	157	100	66	42	539	55	44	263	90	15	6.5
15	283	146	98	66	42	326	56	41	133	78	14	5.9
16	259	141	121	67	43	170	56	38	91	69	13	6.0
17	244	140	115	67	45	138	77	37	78	63	13	6.2
18	227	135	117	68	900	147	66	118	70	58	13	7.4
19	211	134	116	68	4,100	190	63	652	67	56	12	12
20	200	159	115	68	3,000	131	59	170	59	50	13	10
21	189	143	114	68	900	140	56	127	52	47	12	9.3
22	484	136	112	68	460	116	54	107	48	44	12	6.7
23	424	141	110	68	390	90	51	101	46	44	11	6.3
24	333	160	130	68	340	99	49	318	43	45	11	7.7
25	295	170	140	66	300	96	47	150	40	39	9.8	9.4
26	276	160	120	65	2,000	86	46	116	38	39	9.0	11
27	301	130	110	63	1,700	87	80	98	37	35	9.4	11
28	313	118	105	60	382	84	73	87	32	34	8.9	9.9
29	278	119	105	58	------	75	58	82	30	32	8.7	9.0
30	264	121	105	56	------	74	54	76	40	31	8.6	8.3
31	234	------	106	54	------	73	------	75	------	28	8.6	------
TOTAL	11,538	4,821	3,528	2,170	15,211	5,629	1,801	3,124	2,556	2,779	471.0	291.2
MEAN	372	161	114	70.0	543	182	60.0	101	85.2	89.6	15.2	9.71
MAX	2,850	275	140	110	4,100	539	80	652	737	705	27	33
MIN	120	118	98	54	40	73	46	37	30	28	8.6	5.9
CFSM	1.97	.85	.60	.37	2.87	.96	.32	.53	.45	.47	.08	.05
IN.	2.27	.95	.69	.43	2.99	1.11	.35	.61	.50	.55	.09	.06
AC-FT	22,890	9,560	7,000	4,300	30,170	11,170	3,570	6,200	5,070	5,510	934	578

CAL YR 1970 TOTAL 60,757.0 MEAN 166 MAX 2,850 MIN 15 CFSM .88 IN 11.96 AC-FT 120,500
WTR YR 1971 TOTAL 53,919.2 MEAN 148 MAX 4,100 MIN 5.9 CFSM .78 IN 10.61 AC-FT 106,900

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	1245	11.71	3,920	2-26	2400	12.45	4,360
2-20	--	--	* 3,700	2-10	2215	8.35	2,090

* About

05453100 IOWA RIVER AT MARENGO, IOWA

LOCATION.--Lat 41°48'41", long 92°03'42", in SW1/4 NE1/4 sec.24, T.81 N., R.11 W., Iowa County, on right bank 10 ft downstream from abandoned highway bridge, 0.7 mile downstream from Big Bear Creek, 0.8 mile north of Marengo, 4.9 miles upstream from Hilton Creek, and at mile 139.4.
DRAINAGE AREA.--2,794 sq mi.
PERIOD OF RECORD.--October 1956 to current year. Monthly discharge only for some periods, published in WSP 1728.
GAGE.--Water-stage recorder. Datum of gage is 720.52 ft above mean sea level.
AVERAGE DISCHARGE.--15 years, 1,502 cfs (7.30 inches per year, 1,088,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 14,000 cfs Feb. 20 (gage height, 18.15 ft, backwater from ice); maximum gage height, 18.27 ft Feb. 27 (backwater from ice); minimum daily discharge, 168 cfs Sept. 30.
Period of record: Maximum discharge, 30,800 cfs Mar. 31, 1960 (gage height, 19.21 ft); maximum gage height, 19.79 ft July 12, 1969; minimum daily discharge, 54 cfs (estimated) Oct. 11, 12, 1956.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Eleven discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1558: 1957.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Dec. 23 to Mar. 10).

Oct. 1 to June 13				June 14 to Sept. 30			
5.7	402	13.0	4,670	4.9	146	9.0	1,800
8.0	1,320	15.0	7,450	5.4	272	12.0	3,810
11.0	3,090	17.0	13,600	7.0	830	14.0	5,770

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,180	1,910	1,710	920	500	7,300	3,630	1,250	1,350	771	575	228
2	1,090	1,810	1,560	860	500	6,800	3,670	1,220	1,350	990	564	220
3	988	1,740	1,490	810	490	6,400	3,710	1,180	1,340	1,190	568	212
4	916	1,680	1,420	760	480	6,200	3,750	1,150	1,260	1,290	564	225
5	864	1,620	1,360	720	470	6,200	3,790	1,130	1,190	1,220	521	278
6	836	1,580	1,220	670	450	6,000	3,790	1,130	1,160	1,320	494	259
7	804	1,530	1,140	640	440	4,300	3,730	1,130	1,140	1,660	474	262
8	792	1,490	1,180	620	430	3,100	3,410	1,200	1,120	1,850	457	251
9	4,750	1,490	1,190	610	440	2,400	3,040	1,160	1,210	1,910	446	228
10	5,590	1,730	1,280	600	450	2,400	2,750	1,090	1,280	3,180	433	211
11	5,360	1,790	1,360	610	450	2,580	2,520	1,050	1,380	5,600	410	203
12	4,530	1,770	1,270	620	460	2,910	2,390	1,010	1,490	3,490	394	192
13	3,590	1,740	1,150	630	470	4,210	2,260	984	2,350	2,400	381	186
14	3,090	1,720	1,070	640	480	5,240	2,120	960	3,320	2,010	375	182
15	2,680	1,670	1,110	640	490	6,070	1,970	936	3,060	1,670	359	180
16	2,420	1,630	1,180	640	500	6,980	1,860	909	2,140	1,440	349	182
17	2,220	1,580	1,160	640	520	7,020	1,860	886	1,700	1,260	333	185
18	2,050	1,550	1,220	630	2,000	10,500	1,800	964	1,490	1,130	327	182
19	1,900	1,520	1,280	620	6,500	9,850	1,710	2,660	1,400	1,020	321	190
20	1,780	1,570	1,140	620	12,000	7,920	1,660	1,900	1,260	930	315	190
21	1,710	1,640	1,020	610	13,000	6,870	1,600	2,150	1,200	866	309	195
22	1,980	1,740	1,000	600	10,000	6,670	1,530	1,880	1,120	806	306	192
23	2,220	1,730	1,000	600	7,500	6,710	1,470	1,690	1,070	776	289	193
24	1,980	1,670	1,050	580	5,000	6,160	1,400	1,890	1,050	744	278	190
25	1,910	1,520	1,100	580	4,500	5,690	1,340	2,230	1,020	710	269	188
26	1,890	1,460	1,100	560	6,500	5,190	1,280	2,530	942	691	264	194
27	1,910	1,500	1,100	560	8,000	4,170	1,340	2,280	886	657	264	192
28	1,940	1,670	1,100	550	7,800	3,590	1,390	1,810	834	649	259	180
29	1,920	1,710	1,050	540	------	3,520	1,370	1,620	782	642	254	172
30	1,990	1,690	1,050	530	------	3,670	1,290	1,470	771	619	246	168
31	2,010	------	990	520	------	3,660	------	1,390	------	596	236	------
TOTAL	68,890	49,450	37,050	19,730	90,820	170,280	69,430	44,839	41,665	44,087	11,634	6,110
MEAN	2,222	1,648	1,195	636	3,244	5,493	2,314	1,446	1,389	1,422	375	204
MAX	5,590	1,910	1,710	920	13,000	10,500	3,790	2,660	3,320	5,600	575	278
MIN	792	1,460	990	520	430	2,400	1,280	886	771	596	236	168
CFSM	.80	.59	.43	.23	1.16	1.97	.83	.52	.50	.51	.13	.07
IN.	.92	.66	.49	.26	1.21	2.27	.92	.60	.55	.59	.15	.08
AC-FT	136,600	98,080	73,490	39,130	180,100	337,800	137,700	88,940	82,640	87,450	23,080	12,120

CAL YR 1970 TOTAL 545,378 MEAN 1,494 MAX 10,300 MIN 210 CFSM .53 IN 7.26 AC-FT 1,082,000
WTR YR 1971 TOTAL 653,985 MEAN 1,792 MAX 13,000 MIN 168 CFSM .64 IN 8.71 AC-FT 1,297,000

PEAK DISCHARGE (BASE, 6,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	2000	14.52	6,530	3-18	1400	16.37	11,100
2-20	--	--	* 14,000	7-10	2400	14.47	6,440
2-27	--	--	* 8,500				

* About

05453500 LAKE MACBRIDE NEAR SOLON, IOWA

LOCATION.--Lat 41°47'42", long 91°34'28", in NW1/4 SW1/4 sec.29, T.81 N., R.6 W., Johnson County, in MacBride State Park, 200 ft east of dam on Mill Creek and 4.3 miles southwest of Solon.
DRAINAGE AREA.--27.0 sq mi.
PERIOD OF RECORD.--October 1936 to September 1971 (discontinued).
GAGE.--Water-stage recorder. Datum of gage is 675.54 ft above mean sea level, adjustment of 1912, and 36.83 ft below crest of spillway of dam forming lake. Prior to Mar. 31, 1949, nonrecording gage, and Apr. 1, 1949, to Apr. 10, 1957, water-stage recorder, at site 0.5 mile upstream at same datum.
EXTREMES.--Current year: Maximum gage height, 38.24 ft Feb. 20; minimum, 36.39 ft Sept. 4.
Period of record: Maximum gage height, 39.13 ft Sept. 21, 1965; minimum observed, lake drained Oct. 18, 1956, for remedial works in connection with Corps of Engineers Coralville Dam. Lake dry for period in 1956 and 1957.
REMARKS.--Lake is formed by rolled earthfill dam 900 ft long across Mill Creek at mouth. Top of dam is at elevation 721.0 ft above mean sea level. Natural rock broad-crested spillway 170 feet in length at elevation 712.37 ft. Area and capacity of lake at spillway elevation are 960 acres, and 14,400 acre-feet, respectively. Outlet works consists of a 3-ft gated conduit connected to a flat-crested concrete drop spillway at elevation 683.54 ft. Gate is normally closed. Lake is used for recreation in MacBride State Park, and is adjacent to but separated from the Coralville Reservoir. Prior to October 1956, top of dam was at elevation 695.0 ft and spillway at elevation 683.3 ft.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36.88	36.91	36.91	36.84	36.82	37.05	36.85	36.88	37.00	36.67	36.75	36.43
2	36.86	36.90	36.91	36.84	36.81	36.99	36.83	36.87	36.98	36.65	36.76	36.41
3	36.84	36.90	36.88	36.91	36.81	36.93	36.84	36.87	36.95	36.63	36.75	36.40
4	36.84	36.90	36.89	36.95	36.83	36.91	36.84	36.87	36.91	36.61	36.75	36.45
5	36.83	36.88	36.87	36.92	36.88	36.90	36.84	36.87	36.89	36.65	36.74	36.56
6	36.84	36.88	36.87	36.90	36.88	36.89	36.84	36.88	36.88	36.64	36.74	36.55
7	36.85	36.88	36.87	36.87	36.88	36.88	36.83	36.88	36.87	36.64	36.74	36.56
8	36.87	36.88	36.86	36.86	36.87	36.87	36.84	36.89	36.87	36.64	36.73	36.54
9	36.95	36.91	36.87	36.85	36.87	36.87	36.84	36.88	36.85	36.64	36.72	36.75
10	36.95	36.92	36.89	36.85	36.87	36.87	36.83	36.88	36.83	36.64	36.72	36.76
11	36.93	36.92	36.97	36.85	36.87	36.87	36.83	36.87	36.83	36.82	36.71	36.76
12	36.91	36.92	36.97	36.84	36.87	36.90	36.84	36.85	36.83	36.92	36.69	36.76
13	36.91	36.92	36.95	36.84	36.87	36.92	36.85	36.84	36.83	36.89	36.68	36.74
14	36.89	36.91	36.93	36.84	36.87	36.99	36.84	36.85	36.84	36.90	36.68	36.73
15	36.88	36.89	36.92	36.84	36.87	37.05	36.84	36.85	36.84	36.87	36.68	36.71
16	36.88	36.88	36.92	36.83	36.87	37.01	36.86	36.84	36.83	36.83	36.67	36.68
17	36.87	36.88	36.92	36.83	36.93	36.97	36.94	36.82	36.83	36.81	36.65	36.66
18	36.87	36.88	36.92	36.82	37.43	36.99	36.95	36.83	36.81	36.80	36.65	36.64
19	36.87	36.89	36.93	36.83	37.93	37.06	36.92	36.87	36.80	36.78	36.63	36.70
20	36.88	36.90	36.92	36.82	37.97	37.02	36.92	36.86	36.83	36.81	36.62	36.70
21	36.88	36.90	36.91	36.84	37.40	36.99	36.92	36.85	36.83	36.79	36.60	36.69
22	36.89	36.87	36.90	36.84	37.17	36.96	36.89	36.83	36.83	36.77	36.60	36.67
23	36.90	36.85	36.90	36.83	37.04	36.94	36.88	36.82	36.80	36.76	36.59	36.66
24	36.92	36.85	36.88	36.83	36.97	36.92	36.86	36.84	36.78	36.76	36.56	36.66
25	36.92	36.86	36.88	36.84	36.97	36.92	36.85	36.84	36.75	36.76	36.53	36.66
26	36.92	36.88	36.87	36.83	37.39	36.90	36.85	36.83	36.75	36.90	36.50	36.66
27	36.92	36.88	36.86	36.82	37.44	36.88	36.90	36.84	36.74	36.87	36.50	36.65
28	36.94	36.89	36.85	36.82	37.16	36.87	36.90	36.84	36.72	36.83	36.48	36.65
29	36.94	36.89	36.85	36.83	------	36.86	36.89	36.83	36.70	36.81	36.47	36.64
30	36.92	36.90	36.85	36.83	------	36.86	36.88	36.84	36.68	36.79	36.46	36.64
31	36.92	------	36.85	36.82	------	36.86	------	36.89	------	36.77	36.44	------

05453510 CORALVILLE LAKE NEAR CORALVILLE, IOWA
(Formerly published as Coralville Reservoir near Coralville, Iowa)

LOCATION.--Lat 41°43'29", long 91°31'40", in SW1/4 NE1/4 sec.22, T.80 N., R.6 W., Johnson County, at outlet works at left end of Coralville Dam on Iowa River, 2.3 miles upstream from Rapid Creek, 4.3 miles northeast of Coralville Post Office and at mile 83.3.
DRAINAGE AREA.--3,115 sq mi.
PERIOD OF RECORD.--October 1958 to current year.
GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).
EXTREMES.--Current year: Maximum contents, 140,000 acre-ft Mar. 2 (elevation 692.95 ft); minimum, 7,680 acre-ft Feb. 16 (elevation 669.57 ft).
Period of record: Maximum contents, 472,000 acre-ft July 21, 1969 (elevation, 711.85 ft); minimum, 3,800 acre-ft Mar. 10, 1959 (elevation, 658.77 ft).
REMARKS.--Reservoir is formed by earthfill dam completed in 1957. Storage began in September 1958. Releases controlled by three gates, 8.33 ft wide and 20 ft high, into forechamber of 23 ft diameter concrete conduit through dam. Inlet invert elevation at 650 ft. No dead storage. Maximum design discharge through gates is 20,000 cfs. Ungated spillway is concrete overflow section 500 ft in length at elevation 712 ft above mean sea level, contents, 476,000 acre-ft. Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Normal operation will maintain an elevation of 670 ft February 15 to June 15, 680 ft June 15 to September 25, 683 ft September 25 to December 15, and 680 ft December 15 to to February 1 with a minimum release of 150 cfs and maximum release of 10,000 cfs December 15 to May 1 and 6,000 cfs May 1 to December 15.
COOPERATION.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet and contents, in acre-feet)

670	7,900	685	67,800
675	18,600	690	108,000
680	38,700	695	162,000

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57,600	60,200	61,700	37,200	37,900	140,000	10,500	9,600	39,300	38,500	40,000	41,200
2	57,900	60,100	61,400	38,000	37,600	137,000	10,300	8,790	39,500	38,600	39,900	41,300
3	57,400	59,900	60,800	38,900	37,300	132,000	9,920	8,710	39,700	39,300	39,800	41,400
4	57,000	59,600	59,900	39,500	37,100	126,000	9,580	9,000	39,600	41,300	39,900	42,300
5	56,800	58,900	58,900	39,600	37,100	119,000	9,500	9,160	39,300	42,100	40,000	42,700
6	56,900	58,500	57,700	39,500	37,100	111,000	9,500	9,360	38,700	41,700	40,100	43,100
7	56,800	57,900	56,600	39,000	36,900	103,000	9,480	9,600	38,800	41,100	40,000	43,300
8	57,000	57,100	56,400	38,700	34,900	92,600	9,420	9,800	38,800	40,600	39,900	43,500
9	59,400	57,400	56,000	38,600	31,800	79,900	8,430	9,940	38,600	40,500	40,000	44,700
10	62,100	56,900	56,600	38,600	23,700	66,700	8,630	10,100	39,000	42,000	40,000	44,800
11	65,500	56,800	57,000	38,900	26,000	53,600	8,970	10,100	39,500	47,900	39,800	44,900
12	68,700	57,000	57,300	38,900	25,300	40,800	8,890	9,960	40,000	53,500	39,600	44,900
13	72,300	57,300	57,300	39,000	22,600	30,200	8,890	9,960	40,300	52,800	39,600	45,000
14	73,100	57,500	55,900	39,200	19,900	22,400	9,020	10,000	41,400	49,800	39,500	45,100
15	71,900	57,400	52,500	39,200	17,300	16,400	8,650	10,100	42,800	46,200	39,400	45,000
16	69,800	57,300	48,900	39,200	16,400	13,800	8,950	10,100	42,800	43,400	39,200	45,000
17	67,800	57,100	45,400	39,200	16,500	13,100	9,480	10,200	41,000	42,100	39,100	45,000
18	64,800	56,700	43,700	39,200	17,300	14,500	9,560	10,600	40,200	42,400	39,000	45,200
19	61,400	56,900	43,300	39,200	20,600	17,600	9,560	11,800	39,900	42,500	39,400	45,600
20	59,300	57,000	42,500	38,700	38,100	22,500	9,240	13,500	40,000	42,400	39,200	45,500
21	58,600	57,900	41,400	38,700	51,100	24,000	9,240	15,100	38,400	41,900	39,300	45,500
22	59,200	58,500	40,500	38,400	70,900	22,700	9,860	16,700	38,000	41,800	39,400	45,600
23	60,700	58,200	39,700	38,300	89,900	20,400	10,300	17,600	38,700	42,000	39,700	45,500
24	62,000	57,300	38,700	38,200	98,400	18,300	10,300	19,300	39,100	41,800	40,000	45,500
25	62,500	57,400	37,500	38,200	108,000	16,700	10,400	21,700	39,700	42,000	40,000	45,700
26	62,100	58,000	36,300	38,300	123,000	15,800	10,100	24,700	39,600	41,700	40,100	45,700
27	61,500	58,600	35,200	38,100	132,000	15,000	10,700	28,600	39,100	41,100	39,900	45,900
28	60,200	59,800	35,100	38,100	138,000	13,800	10,800	31,700	39,000	40,700	40,100	45,900
29	59,600	60,800	35,600	38,000	------	11,400	10,500	34,000	39,000	40,300	40,600	46,000
30	59,800	61,400	35,900	38,000	------	10,900	10,100	36,000	38,900	40,100	40,900	46,000
31	60,100	------	36,300	38,000	------	10,700	------	38,600	------	40,000	41,100	------
+	683.67	683.88	679.64	679.88	692.75	671.60	671.25	679.98	680.04	680.22	680.40	681.23
*	+2,600	+1,300	-25,100	+1,700	+100,000	-127,300	-600	+28,500	+300	+1,100	+1,100	+4,900
MAX	73,100	61,400	61,700	39,600	138,000	140,000	10,800	38,600	42,800	53,500	41,100	46,000
MIN	56,800	56,700	35,100	37,200	16,400	10,700	8,430	8,710	38,000	38,500	39,000	41,200

CAL YR 1970.....*-3,600
WTR YR 1971.....*-11,500

\+ Elevation, in feet, at end of month.
* Change in contents, in acre-feet.

05454000 RAPID CREEK NEAR IOWA CITY, IOWA

LOCATION.--Lat 41°41'19", long 91°29'15", in NE1/4 NE1/4 sec.36, T.80 N., R.6 W., Johnson County, on left bank 80 ft upstream from bridge on State Highway 1, 3.5 miles northeast of Iowa City, and 4.7 miles upstream from mouth.
DRAINAGE AREA.--25.3 sq mi.
PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder and concrete control with sharp-crested weir. Datum of gage is 673.72 ft above mean sea level.
AVERAGE DISCHARGE.--34 years, 14.2 cfs (7.62 inches per year, 10,290 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 1,000 cfs Feb. 19 (gage height, 11.44 ft, backwater from ice); minimum daily, 0.07 cfs Sept. 17.
Period of record: Maximum discharge, 6,100 cfs May 23, 1965 (gage height, 14.10 ft); from rating curve extended above 2,500 cfs on basis of contracted opening measurement of peak flow; maximum gage height, 14.42 ft June 7, 1967 (backwater from bridge construction); no flow at times most years.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical and suspended-sediment analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1558: 1941 (M), 1943 (P), 1944 (M); 1946. WSP 1708: 1951 (P), 1952, WRD IOWA 1967: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used July 29 to Sept. 3; stage-discharge relation affected by ice Nov. 22-24, Dec. 4-7, 13-16, Dec. 19 to Mar. 12).

2.6	.04	3.1	1.4	4.5	56
2.7	.10	3.3	3.9	5.0	100
2.8	.22	3.5	7.2	6.0	240
2.9	.44	3.8	16	8.0	480
3.0	.80	4.1	30	9.0	630

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	10	10	6.8	1.7	7.0	8.5	6.4	83	.69	2.8	.10
2	27	10	9.0	6.2	1.5	6.2	7.4	5.9	12	.68	2.6	.10
3	25	9.7	9.2	4.6	1.4	4.6	6.9	5.6	8.7	.64	2.7	.10
4	22	9.4	7.6	4.3	2.3	6.0	6.6	5.5	6.9	1.1	1.9	5.7
5	20	9.3	6.8	3.7	2.1	7.8	6.5	5.4	5.8	2.2	1.4	19
6	20	9.2	7.0	3.3	1.9	6.8	6.4	5.4	5.2	1.3	1.3	1.5
7	18	8.5	7.2	3.0	1.7	5.6	6.4	6.1	4.8	1.1	1.0	.39
8	36	8.3	8.8	2.7	1.3	5.4	6.5	5.9	4.2	.92	2.3	.16
9	25	15	8.6	3.0	1.6	6.0	6.3	5.1	3.9	.76	4.2	.12
10	16	16	16	3.5	2.1	7.2	5.8	4.9	3.6	32	1.9	.37
11	14	14	43	3.1	2.6	9.6	6.1	4.8	3.6	20	1.3	.09
12	14	13	28	2.6	3.1	13	6.5	4.6	3.8	4.4	1.1	.12
13	13	13	21	2.3	3.1	20	6.0	4.5	3.4	6.0	.58	.12
14	11	12	18	2.1	3.5	31	5.6	4.4	3.1	3.5	.46	.10
15	11	12	16	2.0	4.2	22	5.6	4.1	3.0	2.4	.50	.08
16	10	12	19	1.9	7.2	13	5.9	4.0	2.6	1.7	1.0	.08
17	10	11	21	1.8	64	11	9.3	3.9	2.3	1.3	.58	.07
18	9.9	11	23	1.7	370	12	6.9	4.2	2.1	2.1	.43	.08
19	9.6	11	25	1.7	530	16	8.3	16	2.1	5.2	.29	2.2
20	9.5	14	22	2.5	225	12	8.1	5.6	3.5	1.7	.25	1.7
21	9.2	12	20	4.5	25	11	7.6	4.6	2.3	1.6	.23	.49
22	12	9.0	19	4.2	19	10	6.6	4.3	2.2	1.0	.25	.22
23	11	9.0	13	3.9	15	7.8	6.1	4.4	3.5	3.6	.17	.13
24	10	9.0	11	4.6	12	8.1	5.7	6.0	2.0	2.7	.15	.12
25	9.4	11	9.4	6.2	80	8.1	5.2	5.2	1.5	9.3	.13	.68
26	9.2	11	10	5.5	305	7.9	5.0	4.3	1.5	18	.12	.28
27	10	10	8.2	3.6	40	8.1	11	4.0	1.4	4.8	.12	.13
28	13	10	7.4	3.5	14	8.1	8.5	3.7	1.1	3.9	.11	.12
29	12	11	7.0	4.5	------	7.5	7.2	3.5	.86	3.6	.10	.11
30	11	10	7.0	3.1	------	7.5	6.7	3.3	.75	3.8	.10	.10
31	11	------	6.8	2.0	------	8.3	------	4.4	------	3.4	.10	------
TOTAL	466.8	330.4	445.0	108.4	1,740.3	314.6	205.2	160.0	184.71	145.39	30.17	34.56
MEAN	15.1	11.0	14.4	3.50	62.2	10.1	6.84	5.16	6.16	4.69	.97	1.15
MAX	36	16	43	6.8	530	31	11	16	83	32	4.2	19
MIN	9.2	8.3	6.8	1.7	1.3	4.6	5.0	3.3	.75	.64	.10	.07
CFSM	.60	.43	.57	.14	2.46	.40	.27	.20	.24	.19	.04	.05
IN.	.69	.49	.65	.16	2.56	.46	.30	.24	.27	.21	.04	.05
AC-FT	926	655	883	215	3,450	624	407	317	366	288	60	69

CAL YR 1970 TOTAL 10,085.00 MEAN 27.6 MAX 959 MIN 1.0 CFSM 1.09 IN 14.83 AC-FT 20,000
WTR YR 1971 TOTAL 4,165.53 MEAN 11.4 MAX 530 MIN .07 CFSM .45 IN 6.12 AC-FT 8,260

PEAK DISCHARGE (BASE, 600 CFS).--Feb. 20 (time unknown) about 1,000 cfs.

05454300 CLEAR CREEK NEAR CORALVILLE, IOWA

LOCATION.--Lat 41°40'36", long 91°35'55", in NE1/4 SE1/4 sec.1, T.79 N., R.7 W., Johnson County, on left bank about 50 ft upstream from bridge on county highway, 1.1 miles west of Post Office in Coralville, 1.5 miles downstream from Deer Creek and 2.7 miles upstream from mouth.
DRAINAGE AREA.--98.1 sq mi.
PERIOD OF RECORD.--October 1952 to current year. Monthly discharge only for some periods, published in WSP 1728.
GAGE.--Water-stage recorder. Datum of gage is 648.43 ft above mean sea level (levels by Corps of Engineers). Prior to Jan. 7, 1957, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--19 years, 54.3 cfs (7.52 inches per year, 39,340 acre-ft per year); median of yearly mean discharges, 46 cfs (6.4 inches per year, 33,300 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 1,650 cfs Feb. 20 (gage height, 13.00 ft); minimum daily, 2.3 cfs Sept. 30.
Period of record: Maximum discharge, 5,390 cfs May 29, 1962; maximum gage height, 13.49 ft Mar. 3, 1970; minimum daily discharge, 0.1 cfs July 1, 1956.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical and suspended sediment analysis for the current year are published in Part 2 of this report.
COOPERATION.--Six discharge measurements furnished by Corps of Engineers.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	67	44	58	18	110	40	34	116	12	10	3.3
2	69	65	42	56	18	90	38	32	33	11	10	3.1
3	67	63	39	52	17	80	35	30	25	11	10	2.9
4	65	62	37	45	17	70	34	30	23	14	9.2	4.2
5	63	60	34	40	17	65	33	30	21	17	8.6	15
6	62	58	40	35	16	55	32	29	20	13	8.2	9.0
7	60	56	44	37	16	50	32	32	19	12	7.8	5.0
8	60	54	45	38	15	48	32	37	19	12	8.0	3.7
9	135	52	40	39	16	46	31	30	18	11	7.9	21
10	116	54	40	40	17	48	30	28	17	23	7.9	11
11	84	55	80	38	17	49	30	27	17	269	7.0	4.9
12	76	54	68	35	18	54	31	26	18	68	6.5	3.7
13	73	53	55	33	19	62	30	25	24	48	6.0	3.2
14	70	52	50	31	20	81	28	24	19	30	6.2	3.0
15	65	51	60	30	21	85	28	22	17	24	6.1	2.7
16	62	48	66	29	30	59	28	21	16	20	5.6	2.6
17	60	47	71	28	90	51	48	21	15	17	5.0	2.5
18	58	47	71	27	550	63	39	21	15	23	4.6	3.0
19	56	50	71	26	1,100	94	36	90	15	20	4.6	9.4
20	54	56	72	25	1,200	50	36	43	24	15	4.5	6.9
21	52	57	75	26	170	44	35	33	16	13	4.3	4.1
22	70	45	70	27	45	41	33	30	16	12	4.0	3.1
23	79	26	60	28	31	30	30	30	38	38	4.0	2.7
24	71	35	55	29	28	33	30	34	16	28	3.9	2.5
25	67	45	50	30	55	36	28	35	14	18	3.8	3.2
26	62	55	52	25	450	33	27	30	13	22	3.8	3.6
27	60	52	53	21	550	35	50	28	13	15	3.8	3.6
28	63	48	54	20	120	37	54	26	12	13	3.7	3.0
29	67	45	55	19	------	36	41	25	12	11	3.5	2.5
30	69	45	56	19	------	36	37	24	12	11	3.4	2.3
31	69	------	57	18	------	39	------	27	------	11	3.3	------
TOTAL	2,155	1,557	1,706	1,004	4,681	1,710	1,036	954	653	862	185.2	150.7
MEAN	69.5	51.9	55.0	32.4	167	55.2	34.5	30.8	21.8	27.8	5.97	5.02
MAX	135	67	80	58	1,200	110	54	90	116	269	10	21
MIN	52	26	34	18	15	30	27	21	12	11	3.3	2.3
CFSM	.71	.53	.56	.33	1.70	.56	.35	.31	.22	.28	.06	.05
IN.	.82	.59	.65	.38	1.78	.65	.39	.36	.25	.33	.07	.06
AC-FT	4,270	3,090	3,380	1,990	9,280	3,390	2,050	1,890	1,300	1,710	367	299

CAL YR 1970 TOTAL 30,012.6 MEAN 82.2 MAX 2,600 MIN 7.6 CFSM .84 IN 11.38 AC-FT 59,530
WTR YR 1971 TOTAL 16,653.9 MEAN 45.6 MAX 1,200 MIN 2.3 CFSM .46 IN 6.32 AC-FT 33,030

PEAK DISCHARGE (BASE, 1,000 CFS).--Feb. 20 (time unknown) about 1,650 cfs.

05454500 IOWA RIVER AT IOWA CITY, IOWA

LOCATION.--Lat 41°39'24", long 91°32'27", in SE1/4 SE1/4 sec.9, T.79 N., R.6 W., Johnson County, on right bank 25 ft downstream from Hydraulics Laboratory of University of Iowa in Iowa City, 175 ft downstream from University Dam, 0.8 mile upstream from Ralston Creek, 3.6 miles downstream from Clear Creek, and at mile 74.2.
DRAINAGE AREA.--3,271 sq mi.
PERIOD OF RECORD.--June 1903 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 39.00 ft above Iowa City datum, and 627.27 ft above mean sea level. See WSP 1708 for history of changes prior to Oct. 1, 1934.
AVERAGE DISCHARGE.--68 years, 1,559 cfs (6.47 inches per year, 1,129,000 acre-ft per year); median of yearly mean discharges, 1,390 cfs (5.8 inches per year, 1,010,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 11,100 cfs Feb. 26 (gage height, 11.90 ft); minimum daily, 155 cfs Sept. 30.
Period of record: Maximum discharge, 42,500 cfs June 8, 1918 (gage height, 19.6 ft, from graph based on gage readings, site and datum then in use); minimum daily, 29 cfs Oct. 21,22, 1916 (regulated).
Flood of July 17, 1881, reached a stage of 21.1 ft, from floodmarks at site and datum in use 1913-21, from information by local resident (discharge, 51,000 cfs). Maximum stage known since at least 1850, about 3 ft higher than that of July 17, 1881, occurred in June 1851 (discharge 70,000 cfs, estimated).
REMARKS.--Records excellent. Diurnal fluctuation at low stages caused by powerplant above station. Flow regulated by Coralville Reservoir since Sept. 17, 1958 (see sta. 05453510). Records of chemical analyses, water temperature, and suspended-sediment loads for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Jan. 27).

-.80	155	3.00	2,400
-.40	270	7.00	5,800
+.20	490	12.0	11,200
1.00	910		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,570	2,180	1,860	810	569	8,950	4,310	1,820	1,490	801	592	172
2	1,340	2,180	1,930	809	562	9,350	4,280	1,790	1,450	774	564	172
3	1,320	2,170	2,010	817	561	10,100	4,240	1,500	1,420	774	541	172
4	1,310	2,160	2,000	819	568	10,100	4,220	1,240	1,410	811	516	200
5	1,180	2,130	1,990	868	569	9,960	4,200	1,250	1,410	1,030	513	242
6	1,040	1,960	1,970	897	565	9,820	4,190	1,250	1,400	1,390	511	188
7	1,040	1,960	1,800	879	566	9,680	4,190	1,280	1,270	1,700	513	178
8	1,040	1,950	1,420	774	1,410	9,590	4,190	1,270	1,140	1,950	521	178
9	1,630	1,980	1,410	697	2,420	9,370	4,160	1,260	1,130	2,040	520	208
10	2,500	1,980	1,450	688	2,290	9,230	3,570	1,250	1,130	2,170	438	195
11	3,040	1,960	1,560	679	2,140	8,750	3,010	1,250	1,180	2,060	458	175
12	3,430	1,960	1,490	675	1,910	8,620	3,010	1,240	1,290	1,990	428	175
13	3,760	1,950	1,470	676	1,860	8,120	2,730	1,140	1,480	3,780	390	172
14	3,760	1,870	1,810	675	1,760	7,270	2,480	992	2,330	3,860	362	172
15	3,750	1,870	2,700	679	1,670	6,730	2,470	989	2,800	3,730	360	170
16	3,740	1,870	2,930	674	1,100	6,940	2,350	983	2,810	3,080	357	172
17	3,720	1,870	2,910	674	617	6,710	2,250	897	2,800	2,120	354	172
18	3,700	1,870	2,340	671	2,270	6,870	2,240	825	2,170	1,570	328	175
19	3,680	1,820	1,500	691	5,350	7,420	2,250	1,360	1,590	1,160	304	205
20	3,510	1,700	1,470	680	4,660	8,080	2,230	1,690	1,620	1,140	302	180
21	2,480	1,690	1,470	673	1,780	8,690	2,070	1,540	1,740	1,120	280	172
22	1,920	1,670	1,460	671	1,450	8,750	1,550	1,560	1,580	1,010	237	172
23	1,940	1,630	1,340	669	2,250	8,460	1,550	1,580	1,060	959	234	170
24	1,930	1,660	1,180	668	5,160	8,070	1,550	1,370	849	951	234	170
25	1,920	1,620	1,150	649	8,540	7,700	1,540	1,050	924	956	227	180
26	2,170	1,450	1,140	653	10,200	7,430	1,540	1,050	1,040	961	202	175
27	2,640	1,450	1,120	650	9,360	6,670	1,610	1,060	1,040	866	192	173
28	2,860	1,450	966	646	8,420	5,990	1,670	1,070	936	787	175	172
29	2,670	1,450	804	605	------	5,510	1,860	1,070	829	781	175	158
30	2,200	1,590	801	572	------	4,360	1,840	1,070	831	707	175	155
31	2,190	------	804	581	------	4,340	------	1,100	------	616	172	------
TOTAL	74,980	55,050	50,255	21,869	80,577	247,630	83,350	38,796	44,149	47,644	11,175	5,370
MEAN	2,419	1,835	1,621	705	2,878	7,988	2,778	1,251	1,472	1,537	360	179
MAX	3,760	2,180	2,930	897	10,200	10,100	4,310	1,820	2,810	3,860	592	242
MIN	1,040	1,450	801	572	561	4,340	1,540	825	829	616	172	155
AC-FT	148,700	109,200	99,680	43,380	159,800	491,200	165,300	76,950	87,570	94,500	22,170	10,650

CAL YR 1970 TOTAL 692,139 MEAN 1,896 MAX 8,490 MIN 319 AC-FT 1,373,000
WTR YR 1971 TOTAL 760,845 MEAN 2,085 MAX 10,200 MIN 155 AC-FT 1,509,000

05455000 RALSTON CREEK AT IOWA CITY, IOWA

LOCATION.--Lat 41°39'50",long 91°30'48", in SE1/4 NW1/4 sec.11, T.79 N., R.6 W., Johnson County, on left bank 10 ft upstream from bridge on Rochester Avenue, 1.0 mile northeast of Post Office in Iowa City and 2.2 miles upstream from mouth.
DRAINAGE AREA.--3.01 sq mi.
PERIOD OF RECORD.--September 1924 to current year.
GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 662.53 ft above mean sea level (University of Iowa bench mark).
AVERAGE DISCHARGE.--47 years, 1.57 cfs (7.08 inches per year, 1,140 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 220 cfs Feb. 19 (gage height, 4.15 ft, backwater from ice); maximum gage height, 4.28 ft Feb. 18 (backwater from ice); no flow Aug. 25 to Sept. 3.
Period of record: Maximum discharge, 1,940 cfs Sept. 21, 1965 (gage height, 6.90 ft); maximum gage height, 9.06 ft July 18, 1956; no flow at times during most years.
REMARKS.--Records good except those for winter period, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1508: 1933, 1935-37, 1940-41 (M); 1942, 1943 (M), 1948-51, 1952 (P), 1953, 1954 (M), 1955. WRD Iowa. 1967: 1965-66.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.1	1.2	.96	.42	1.8	1.6	.64	3.0	.14	.05	0
2	1.5	1.3	.98	.90	.31	1.2	1.3	.59	.92	.12	.05	0
3	1.3	1.2	.88	.94	.23	.90	1.9	.52	.79	.12	.05	0
4	1.3	1.2	.79	.88	.34	1.1	2.0	.61	.72	.48	.04	1.1
5	1.3	1.1	.75	.80	.31	1.4	1.1	.59	.62	.42	.04	3.0
6	1.3	1.1	.62	.75	.28	1.3	1.1	.56	.56	.27	.03	.19
7	1.3	.99	.68	.64	.26	1.2	1.1	1.7	.52	.47	.03	.10
8	8.3	.92	.82	.54	.18	1.1	1.2	1.1	.49	.21	.12	.07
9	5.6	2.8	.80	.65	.24	1.2	1.1	.56	.44	.17	.05	.17
10	2.7	2.1	1.4	.65	.27	1.5	.99	.56	.47	11	.05	.11
11	2.1	1.5	1.3	.54	.32	2.6	.99	.56	.52	3.3	.04	.08
12	1.3	1.6	1.0	.47	.42	2.8	1.0	.47	.85	.64	.04	.06
13	1.5	1.5	.95	.41	.43	6.2	.89	.47	1.4	.70	.06	.09
14	1.3	1.4	.90	.36	.70	9.5	.76	.47	.67	.32	.11	.08
15	1.2	1.6	.80	.33	1.3	5.4	.73	.42	.42	.32	.03	.05
16	1.1	2.1	1.2	.29	2.4	1.9	.89	.34	.36	.31	.03	.04
17	1.1	2.1	1.5	.27	24	1.9	1.3	.36	.31	.29	.02	.05
18	1.1	2.1	1.7	.24	70	2.7	.73	.34	.32	.54	.02	.06
19	1.0	2.2	1.6	.21	80	2.5	1.2	1.9	.26	.40	.03	.74
20	1.0	2.9	1.4	.32	20	2.0	.85	.64	.64	.25	.04	.17
21	.99	2.3	1.2	.82	3.4	1.8	.70	.47	.24	.23	.02	.11
22	2.9	1.8	1.1	.76	2.2	1.6	.64	.49	1.5	.17	.02	.09
23	1.8	1.4	.90	.66	1.8	1.3	.59	.85	1.6	.83	.02	.06
24	1.4	.64	.82	.70	1.4	1.4	.52	2.1	.36	.31	.01	.06
25	1.1	1.4	.76	.85	9.0	1.4	.52	.68	.31	4.5	.01	.17
26	1.1	2.2	.70	.59	16	1.4	.54	.57	.26	1.3	0	.13
27	1.3	2.3	.64	.42	3.8	1.6	2.8	.52	.21	.31	0	.10
28	2.2	2.1	.62	.34	2.5	1.5	1.5	.47	.17	.14	0	.08
29	1.4	1.6	.60	.70	------	1.6	1.0	.44	.15	.10	0	.07
30	1.3	1.3	.61	.64	------	2.1	.85	.42	.15	.08	0	.06
31	1.2	------	.64	.52	------	2.0	------	1.3	------	.07	0	------
TOTAL	55.89	49.85	29.86	18.15	242.51	67.90	32.39	21.71	19.23	28.51	1.01	7.09
MEAN	1.80	1.66	.96	.59	8.66	2.19	1.08	.70	.64	.92	.033	.24
MAX	8.3	2.9	1.7	.96	80	9.5	2.8	2.1	3.0	11	.12	3.0
MIN	.99	.64	.60	.21	.18	.90	.52	.34	.15	.07	0	0
CFSM	.60	.55	.32	.20	2.88	.73	.36	.23	.21	.31	.01	.08
IN.	.69	.62	.37	.22	3.00	.84	.40	.27	.24	.35	.01	.09
AC-FT	111	99	59	36	481	135	64	43	38	57	2.0	14

CAL YR 1970 TOTAL 1,010.10 MEAN 2.77 MAX 151 MIN .11 CFSM .92 IN 12.48 AC-FT 2,000
WTR YR 1971 TOTAL 574.10 MEAN 1.57 MAX 80 MIN 0 CFSM .52 IN 7.10 AC-FT 1,140

PEAK DISCHARGE (BASE, 200 CFS).--Feb. 19 (time unknown) about 220 cfs.

05455010 SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IOWA

LOCATION.--Lat 41°39'05", long 91°30'27", in SW1/4 NE1/4 sec.14, T.79 N., R.6 W., Johnson County, on right bank 60 ft downstream from bridge on Muscatine Avenue in Iowa City, and 1.2 miles upstream from mouth.
DRAINAGE AREA.--2.94 sq mi.
PERIOD OF RECORD.--October 1963 to current year.
GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 678.03 ft above mean sea level.
AVERAGE DISCHARGE.--8 years, 2.02 cfs (9.33 inches per year, 1,460 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 292 cfs July 10 (gage height, 6.20 ft); no flow Sept. 1-3.
Period of record: Maximum discharge, 859 cfs June 7, 1967 (gage height, 8.78 ft); no flow at times most years.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.
REVISIONS.--WRD Iowa 1966: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 21-25, Dec. 4-8, 13-16, 18-20, Dec. 23 to Feb. 25, Feb. 28 to Mar. 8).

1.07	0	1.3	.13	1.9	6.7
1.10	.01	1.4	.24	2.1	14
1.13	.02	1.5	.42	2.5	31
1.17	.03	1.6	.71	3.0	60
1.23	.07	1.7	1.4		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.1	.86	.86	.28	.99	1.6	.66	6.7	.14	.34	0
2	1.3	1.0	.76	.60	.22	.80	1.5	.61	.87	.15	.36	0
3	1.3	.99	.78	.48	.19	.90	1.2	.55	.72	.13	.39	0
4	1.8	.99	.68	.45	.25	.94	1.1	.63	.65	4.9	.33	14
5	1.6	.94	.62	.42	.33	.90	1.2	.57	.58	.43	.26	3.9
6	1.2	.94	.58	.40	.21	.93	1.1	.55	.51	.27	.21	.41
7	1.7	.87	.54	.37	.18	.56	.87	1.4	.58	.57	.19	.18
8	11	.95	.60	.35	.15	.66	.73	.71	.43	.24	.25	.14
9	8.2	4.8	.72	.40	.17	.84	.70	.64	.40	.25	.30	.59
10	2.8	1.6	9.0	.44	.19	1.2	.67	.56	.38	26	.74	.16
11	1.8	1.2	8.5	.47	.23	1.4	.75	.54	1.1	2.9	.17	.09
12	1.5	1.2	3.6	.45	.30	1.1	.76	.48	.40	.95	.14	.09
13	1.3	1.2	2.2	.42	.40	1.2	.72	.48	.46	1.5	.12	.07
14	1.2	1.0	1.5	.39	.54	2.6	.86	.44	.37	.69	.47	.05
15	1.1	1.0	1.7	.36	2.5	1.6	.87	.42	.33	.56	.11	.03
16	1.1	.99	2.6	.35	9.0	1.1	1.1	.42	.30	.45	.09	.03
17	.99	.93	2.5	.33	25	1.0	1.2	.36	.28	.37	.08	.02
18	.95	.93	3.0	.50	60	2.5	.70	2.5	.28	20	.07	.17
19	.89	2.0	2.8	.70	50	1.6	1.1	4.1	.26	2.0	.11	2.6
20	.89	1.7	3.5	1.0	7.0	1.1	.90	.70	2.2	.76	.06	.14
21	.87	.90	2.0	1.5	1.0	.94	.80	.59	.30	.53	.05	.09
22	4.3	.70	1.9	1.2	1.8	.88	.63	.52	7.6	.45	.05	.07
23	1.7	.59	1.8	.90	1.6	.88	.61	.67	1.6	4.0	.04	.08
24	1.3	.66	1.6	1.3	2.5	.86	.57	1.2	.43	.69	.08	.05
25	1.1	.78	1.1	1.7	23	.84	.54	.54	.36	20	.05	.67
26	1.1	.86	.93	1.0	22	.83	.50	.46	.32	2.8	.04	.12
27	1.9	.96	.84	.35	2.6	.86	4.9	.42	.27	.82	.04	.09
28	3.1	.82	.78	.30	2.2	.97	.82	.39	.21	.61	.12	.12
29	1.4	.93	.90	.45	------	1.3	.73	.36	.17	.51	.02	.12
30	1.2	.85	.72	.40	------	1.5	.69	.40	.16	.47	.02	.07
31	1.1	------	.80	.34	------	1.7	------	4.5	------	.40	.01	------
TOTAL	63.09	34.38	60.41	19.18	213.84	35.48	30.42	27.37	29.22	94.54	5.31	24.15
MEAN	2.04	1.15	1.95	.62	7.64	1.14	1.01	.88	.97	3.05	.17	.81
MAX	11	4.8	9.0	1.7	60	2.6	4.9	4.5	7.6	26	.74	14
MIN	.87	.59	.54	.30	.15	.56	.50	.36	.16	.13	.01	0
CFSM	.69	.39	.66	.21	2.60	.39	.34	.30	.33	1.04	.06	.28
IN.	.80	.44	.76	.24	2.71	.45	.38	.35	.37	1.20	.07	.31
AC-FT	125	68	120	38	424	70	60	54	58	188	11	48

CAL YR 1970 TOTAL 1,220.61 MEAN 3.34 MAX 155 MIN .04 CFSM 1.14 IN 15.44 AC-FT 2,420
WTR YR 1971 TOTAL 637.39 MEAN 1.75 MAX 60 MIN 0 CFSM .60 IN 8.06 AC-FT 1,260

PEAK DISCHARGE (BASE, 200 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
7-10	1905	6.20	292	7-25	1915	5.15	218
7-18	1910	5.69	255	9-4	2130	5.48	241

05455500 ENGLISH RIVER AT KALONA, IOWA

LOCATION.--Lat 41°27'59", long 91°42'56", in SE1/4 SE1/4 sec.13, T.77 N., R.8 W., Washington County, on right bank 30 ft upstream from bridge on State Highway 1, 0.8 mile south of Kalona, 1.1 miles upstream from Camp Creek, 4.5 miles downstream from Smith Creek, and 14.5 miles upstream from mouth.
DRAINAGE AREA.--573 sq mi.
PERIOD OF RECORD.--September 1939 to current year.
GAGE.--Water-stage recorder. Datum of gage is 633.45 ft above mean sea level (levels by Corps of Engineers). Prior to Dec. 27, 1939, nonrecording gage 30 ft downstream at same datum.
AVERAGE DISCHARGE.--32 years, 335 cfs (7.94 inches per year, 242,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 5,300 cfs Feb. 20 (gage height, 18.44 ft, backwater from ice); minimum daily, 13 cfs Sept. 17.
Period of record: Maximum discharge, 20,000 cfs Sept. 21, 1965 (gage height, 21.45 ft); minimum daily, 1.1 cfs Jan. 20-27, 1956.
Flood in June 1930 reached a stage of 19.9 ft from floodmark, from information by local residents (discharge, 18,500 cfs).
REMARKS.--Records good except those for winter periods, which are fair. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Five discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1940 (M), 1941, WSP 1708: 1956, 1957 (P), 1958 (P).

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Oct. 10-22, Mar. 18 to May 31, July 27 to Sept. 3; stage-discharge relation affected by ice Dec. 7, Dec. 22 to Mar. 9).

2.2	11	8.0	1,480
2.3	21	11.0	2,850
2.7	73	13.0	4,100
3.5	217	15.0	5,900
5.0	565		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	559	580	258	190	110	1,600	189	176	478	74	95	28
2	505	530	245	190	110	600	184	166	387	73	87	29
3	444	494	221	180	110	320	170	156	193	63	84	27
4	382	461	211	180	110	280	161	148	154	61	83	30
5	349	433	195	170	100	260	157	146	139	95	77	47
6	331	410	181	170	88	240	153	146	129	114	73	69
7	353	389	185	170	74	230	152	155	122	85	71	56
8	322	359	189	160	62	220	151	225	125	71	72	33
9	1,500	365	222	160	64	220	150	259	116	66	76	25
10	3,230	454	229	160	66	222	145	209	106	694	64	28
11	2,970	448	570	160	68	222	140	187	103	4,290	60	43
12	1,430	385	492	160	70	326	145	180	103	2,060	56	32
13	930	363	389	150	74	433	154	174	110	616	54	23
14	749	347	316	150	78	550	146	161	310	335	53	19
15	643	326	264	150	82	760	138	152	252	214	50	16
16	572	309	324	150	88	454	135	142	195	168	48	15
17	528	305	514	140	250	296	149	134	128	138	47	13
18	495	298	541	140	1,500	290	191	129	112	120	46	14
19	459	287	636	140	3,000	360	187	528	112	108	46	23
20	428	374	496	140	5,000	313	175	693	105	107	44	27
21	405	416	385	140	4,600	266	162	306	97	102	40	28
22	411	353	380	130	4,000	256	150	237	89	86	41	23
23	1,020	260	360	130	2,000	217	142	214	82	579	40	18
24	868	182	300	130	700	191	134	219	78	1,140	37	14
25	717	320	290	130	600	194	127	447	73	319	36	15
26	609	302	280	120	1,600	194	123	320	70	250	34	15
27	662	289	270	120	1,800	189	140	244	68	285	32	15
28	943	282	240	120	2,000	194	284	219	66	149	31	15
29	904	266	220	120	------	189	252	203	60	121	31	17
30	724	260	210	120	------	179	198	193	58	111	30	19
31	649	------	200	110	------	180	------	184	------	105	30	------
TOTAL	25,091	10,847	9,813	4,580	28,404	10,445	4,884	7,052	4,220	12,799	1,668	776
MEAN	809	362	317	148	1,014	337	163	227	141	413	53.8	25.9
MAX	3,230	580	636	190	5,000	1,600	284	693	478	4,290	95	69
MIN	322	182	181	110	62	179	123	129	58	61	30	13
CFSM	1.41	.63	.55	.26	1.77	.59	.28	.40	.25	.72	.09	.05
IN.	1.63	.70	.64	.30	1.84	.68	.32	.46	.27	.83	.11	.05
AC-FT	49,770	21,520	19,460	9,080	56,340	20,720	9,690	13,990	8,370	25,390	3,310	1,540

CAL YR 1970 TOTAL 229,038 MEAN 628 MAX 11,200 MIN 27 CFSM 1.10 IN 14.87 AC-FT 454,300
WTR YR 1971 TOTAL 120,579 MEAN 330 MAX 5,000 MIN 13 CFSM .58 IN 7.83 AC-FT 239,200

PEAK DISCHARGE (BASE, 4,000 CFS).--Feb. 20 (time unknown) about 5,300 cfs; July 11 (0730) 4,560 cfs (13.57 ft).

05455700 IOWA RIVER NEAR LONE TREE, IOWA

LOCATION.--Lat 41°25'15", long 91°28'25", in NW1/4 NE1/4 sec.6, T.76 N., R.5 W., Louisa County, on left bank 10 ft downstream from bridge on county highway W66, 5 miles southwest of Lone Tree, 6.2 miles downstream from English River, and at mile 47.2.
DRAINAGE AREA.--4,293 sq mi.
PERIOD OF RECORD.--October 1956 to current year.
GAGE.--Water-stage recorder. Datum of gage is 588.16 ft above mean sea level. Prior to Dec. 28, 1956, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--15 years, 2,447 cfs (7.74 inches per year, 1,773,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 15,400 cfs Feb. 27 (gage height, 15.26 ft); maximum gage height, 18.38 ft Feb. 21 (backwater from ice); minimum daily discharge, 221 cfs Sept. 16.
Period of record: Maximum discharge, 31,200 cfs Sept. 22, 1965 (gage height, 20.27 ft); minimum daily, 75 cfs Dec. 8, 1956.
Flood of May 25, 1944, reached a stage of 19.94 ft, (discharge not determined), from information by Corps of Engineers.
REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Coralville Reservoir beginning Sept. 17, 1958 (see sta. 05453510).
COOPERATION.--Ten discharge measurements furnished by Corps of Engineers.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used May 20-31, July 27 to Aug. 11; stage-discharge relation affected by ice Dec. 25 to Feb. 26).

3.3	215	9.0	4,870
4.0	480	12.0	8,550
4.8	930	14.0	12,200
6.0	1,940	16.0	17,800

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,050	3,240	2,300	1,300	850	14,400	4,710	2,320	2,790	967	893	246
2	2,580	3,140	2,390	1,220	840	13,000	4,660	2,260	2,830	945	843	244
3	2,390	3,080	2,470	1,240	820	11,900	4,590	2,200	2,080	920	807	242
4	2,260	3,030	2,470	1,260	800	10,800	4,530	1,750	1,880	921	760	252
5	2,190	2,980	2,420	1,280	790	10,900	4,490	1,670	1,810	1,020	726	496
6	1,980	2,850	2,330	1,350	780	10,700	4,470	1,670	1,760	1,420	699	349
7	1,870	2,750	2,280	1,400	770	10,300	4,460	1,700	1,740	1,630	681	302
8	1,880	2,700	1,960	1,380	760	9,980	4,450	1,800	1,490	2,010	681	272
9	2,070	2,720	1,880	1,280	1,900	9,990	4,440	1,840	1,420	2,120	756	269
10	5,080	2,850	1,920	1,200	2,600	9,830	4,300	1,790	1,390	2,780	678	339
11	6,220	2,850	2,920	1,180	2,500	9,650	3,440	1,730	1,430	7,250	587	270
12	5,910	2,760	2,770	1,160	2,350	9,330	3,370	1,690	1,760	5,680	570	254
13	5,120	2,710	2,470	1,150	2,100	9,260	3,350	1,660	1,600	4,620	529	241
14	4,920	2,640	2,270	1,140	2,050	9,010	2,950	1,460	2,100	4,470	491	233
15	4,740	2,560	2,890	1,130	2,000	8,300	2,870	1,380	3,090	4,160	463	225
16	4,610	2,530	3,420	1,110	1,900	7,830	2,830	1,350	3,080	3,790	450	221
17	4,530	2,520	3,730	1,100	1,400	7,300	2,710	1,320	2,970	2,910	437	223
18	4,470	2,510	3,750	1,090	2,500	7,140	2,720	1,180	2,860	2,230	421	227
19	4,400	2,500	2,970	1,080	6,000	7,560	2,740	1,280	1,990	1,750	391	268
20	4,320	2,470	2,600	1,060	9,600	7,910	2,730	2,810	1,890	1,440	374	283
21	3,930	2,540	2,470	1,040	12,000	8,370	2,690	2,170	1,870	1,400	367	251
22	2,940	2,470	2,380	1,020	10,000	8,800	2,280	1,920	2,150	1,340	345	241
23	3,080	2,270	2,290	1,010	7,800	8,890	2,050	1,880	1,650	1,390	321	236
24	3,520	2,060	1,850	1,000	6,900	8,660	2,020	1,870	1,230	2,640	313	230
25	3,200	2,120	1,760	990	7,200	8,290	1,990	1,570	1,070	1,900	310	241
26	3,060	2,200	1,740	970	10,500	7,930	1,970	1,570	1,200	1,810	300	247
27	3,420	2,090	1,720	950	14,700	7,580	2,050	1,370	1,230	1,770	286	235
28	4,060	2,040	1,700	930	14,400	6,560	2,190	1,310	1,210	1,370	271	232
29	4,340	2,030	1,600	910	------	6,180	2,430	1,290	1,030	1,190	257	233
30	3,690	2,020	1,500	890	------	5,120	2,390	1,260	976	1,130	252	222
31	3,370	------	1,400	870	------	4,720	------	1,270	------	988	250	------
TOTAL	113,200	77,230	72,620	34,690	126,810	276,190	96,870	52,340	55,576	69,961	15,509	7,824
MEAN	3,652	2,574	2,343	1,119	4,529	8,909	3,229	1,688	1,853	2,257	500	261
MAX	6,220	3,240	3,750	1,400	14,700	14,400	4,710	2,810	3,090	7,250	893	496
MIN	1,870	2,020	1,400	870	760	4,720	1,970	1,180	976	920	250	221
AC-FT	224,500	153,200	144,000	68,810	251,500	547,800	192,100	103,800	110,200	138,800	30,760	15,520

CAL YR 1970 TOTAL 1,075,411 MEAN 2,946 MAX 16,700 MIN 472 AC-FT 2,133,000
WTR YR 1971 TOTAL 998,820 MEAN 2,736 MAX 14,700 MIN 221 AC-FT 1,981,000

05457700 CEDAR RIVER AT CHARLES CITY, IOWA

LOCATION.--Lat 43°03'45", long 92°40'23", in SE1/4 NE1/4, sec.12, T.95 N., R.16 W., Floyd County, on right bank 800 ft downstream from bridge on U.S. Highway 18 (Brantingham Street) in Charles City, 10.6 miles upstream from Gizzard Creek, and at mile 252.9 upstream from mouth of Iowa River.
DRAINAGE AREA.--1,054 sq mi.
PERIOD OF RECORD.--October 1964 to current year.
GAGE.--Water-stage recorder. Datum of gage is 973.02 ft above mean sea level.
AVERAGE DISCHARGE.--7 years, 642 cfs (8.27 inches per year, 465,100 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 9,090 cfs Apr. 1 (gage height, 12.11 ft); minimum daily, 150 cfs Jan. 6.
Period of record: Maximum discharge, 21,000 cfs Apr. 7, 1965 (gage height, 19.14 ft); maximum gage height, 21.64 ft Mar. 2, 1965 (backwater from ice); minimum daily discharge, 86 cfs Dec. 1, 1966.
Flood of Mar. 27, 1961, reached a stage of 21.6 ft, from floodmarks (discharge, 29,200 cfs).
REMARKS.-- Records good except those for winter periods, which are poor. Occasional minor regulation by dam 0.2 mile above gage. Daily wire-weight gage readings available in district office for period Sept.13, 1945, to June 30, 1954, at same site and datum. Discharge not published for this period because of extreme regulation of streamflow by power dam 0.2 mile upstream. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 23-25, Dec. 6, 7, Dec. 9 to Mar. 12, Mar. 15).

2.1	160	5.0	2,160
2.5	395	9.0	5,740
3.0	760	12.0	8,940

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	217	891	629	305	252	900	8,510	631	885	685	262	183
2	216	822	665	310	258	930	6,690	632	1,220	624	253	189
3	210	826	742	288	250	930	3,260	614	813	541	242	189
4	201	985	713	200	240	920	2,240	601	646	504	237	191
5	198	1,210	640	166	230	870	1,970	590	561	510	234	192
6	201	1,210	320	150	226	820	1,890	572	512	519	231	186
7	202	1,050	260	176	228	770	1,860	546	926	467	230	181
8	260	902	598	194	240	720	1,890	525	1,020	440	227	178
9	1,340	909	550	208	236	660	1,880	505	988	414	225	190
10	2,130	1,020	320	222	230	630	1,700	485	859	425	223	324
11	2,190	1,290	206	234	228	600	1,530	476	728	418	218	357
12	1,510	1,390	340	246	220	580	1,390	461	645	404	214	268
13	1,080	1,200	470	252	220	563	1,260	451	674	390	209	226
14	880	1,070	400	262	218	1,110	1,140	446	828	375	206	203
15	741	1,010	350	268	216	3,300	1,060	435	631	357	206	191
16	643	942	410	270	216	5,490	990	424	521	339	201	186
17	578	866	450	272	216	4,780	931	422	459	327	197	183
18	534	800	460	272	230	4,600	887	474	430	325	193	181
19	495	828	400	270	390	4,470	853	554	418	315	229	191
20	465	1,070	350	270	640	3,820	827	551	2,020	294	208	192
21	448	1,080	330	268	820	3,130	803	548	1,150	284	207	189
22	430	1,030	340	268	900	2,650	765	539	795	278	204	193
23	422	580	340	260	920	2,280	724	538	676	290	196	205
24	428	420	340	254	920	1,950	695	538	618	283	190	205
25	429	510	330	250	900	1,690	661	573	1,310	292	188	212
26	451	909	330	244	940	1,540	623	597	1,300	311	185	207
27	959	819	325	240	950	1,530	617	599	904	308	185	206
28	1,340	711	315	230	930	3,040	619	562	679	300	184	205
29	1,600	673	300	240	------	5,220	619	534	568	285	181	214
30	1,280	657	300	244	------	5,540	623	514	605	278	180	202
31	1,030	------	300	250	------	7,210	------	524	------	266	181	------
TOTAL	23,108	27,680	12,823	7,583	12,464	73,243	49,507	16,461	24,389	11,848	6,526	6,219
MEAN	745	923	414	245	445	2,363	1,650	531	813	382	211	207
MAX	2,190	1,390	742	310	950	7,210	8,510	632	2,020	685	262	357
MIN	198	420	206	150	216	563	617	422	418	266	180	178
CFSM	.71	.88	.39	.23	.42	2.24	1.57	.50	.77	.36	.20	.20
IN.	.82	.98	.45	.27	.44	2.59	1.75	.58	.86	.42	.23	.22
AC-FT	45,830	54,900	25,430	15,040	24,720	145,300	98,200	32,650	48,380	23,500	12,940	12,340

CAL YR 1970 TOTAL 175,477 MEAN 481 MAX 2,190 MIN 154 CFSM .46 IN 6.19 AC-FT 348,100
WTR YR 1971 TOTAL 271,851 MEAN 745 MAX 8,510 MIN 150 CFSM .71 IN 9.59 AC-FT 539,200

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
3-16	1415	9.05	5,820	6-20	1130	5.70	2,730
4-1	0545	12.11	9,090				

05458000 LITTLE CEDAR RIVER NEAR IONIA, IOWA

LOCATION.--Lat 43°02'05", long 92°30'05", in SW1/4 NE1/4 sec.21, T.95 N., R.14 W., Chickasaw County, on left bank 12 ft downstream from bridge on county highway B57, 2.4 miles west of Ionia, 6.4 miles upstream from mouth, and 7.6 miles downstream from Beaver Creek.
DRAINAGE AREA.--306 sq mi.
PERIOD OF RECORD.--October 1954 to current year.
GAGE.--Water-stage recorder. Datum of gage is 973.35 ft above mean sea level.
AVERAGE DISCHARGE.--17 years, 139 cfs (6.17 inches per year, 100,700 acre-ft per year); median of yearly mean discharges, 120 cfs (5.3 inches per year, 86,900 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 2,580 cfs Mar. 31 (gage height, 8.79 ft); maximum gage height, 9.43 ft Mar. 17 (backwater from ice); minimum daily discharge, 30 cfs Sept. 8.
Period of record: Maximum discharge, 10,800 cfs Mar. 27, 1961 (gage height, 15.58 ft); minimum daily, 3.0 cfs Feb. 4-9, 1959.
Flood of June 22, 1954, reached a stage of 11.37 ft (discharge, 4,600 cfs)
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1708: 1959.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage discharge relation affected by ice Nov. 24, 25, Dec. 5-7, 10, 11, 19-23, Jan. 3 to Feb. 16, Mar. 15-22).

3.1	26	4.0	137	6.0	875
3.3	41	4.5	254	7.0	1,400
3.7	87	5.0	422	9.0	2,750

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	311	219	86	52	282	2,280	147	161	207	53	32
2	55	282	219	87	51	274	1,730	149	165	174	50	32
3	51	298	221	75	50	260	730	149	143	151	48	31
4	49	496	219	52	51	240	523	145	124	143	47	31
5	48	500	160	43	52	221	472	143	112	139	47	34
6	48	390	75	43	53	209	449	141	107	133	46	32
7	47	304	100	47	53	192	445	131	251	124	46	31
8	64	265	188	50	53	178	456	126	298	115	46	30
9	1,170	339	176	53	53	168	449	120	254	107	46	31
10	1,530	476	90	56	53	161	404	115	204	105	46	32
11	1,380	422	54	58	52	153	346	113	176	105	43	59
12	626	350	120	60	50	149	325	108	155	98	42	58
13	390	298	149	61	50	157	325	107	137	93	41	45
14	301	279	141	62	50	698	282	104	126	108	40	39
15	257	262	135	60	50	1,200	254	102	116	90	39	35
16	226	243	147	60	50	1,600	237	99	107	82	38	32
17	204	224	141	60	57	1,900	229	101	99	75	37	32
18	188	219	137	62	58	1,480	221	126	95	75	36	31
19	174	251	116	62	84	1,200	216	192	90	80	43	34
20	163	644	96	64	176	1,000	212	200	1,420	68	40	35
21	155	770	94	64	248	820	202	178	1,250	64	40	34
22	147	608	98	63	232	640	190	159	386	61	39	33
23	143	279	98	62	271	536	178	172	276	61	37	35
24	145	180	102	61	276	445	170	180	224	68	35	36
25	151	222	99	60	274	379	161	168	740	72	35	36
26	153	288	99	58	288	350	153	157	730	63	33	37
27	599	251	96	55	292	375	153	145	364	61	33	37
28	1,210	224	90	57	292	1,300	157	135	246	62	32	36
29	875	219	84	57	------	2,110	153	126	195	59	32	37
30	472	219	83	56	------	2,100	149	116	202	57	31	35
31	372	------	84	54	------	2,310	------	120	------	55	31	------
TOTAL	11,453	10,113	3,930	1,848	3,371	23,087	12,251	4,274	8,953	2,955	1,252	1,072
MEAN	369	337	127	59.6	120	745	408	138	298	95.3	40.4	35.7
MAX	1,530	770	221	87	292	2,310	2,280	200	1,420	207	53	59
MIN	47	180	54	43	50	149	149	99	90	55	31	30
CFSM	1.21	1.10	.42	.19	.39	2.43	1.33	.45	.97	.31	.13	.12
IN.	1.39	1.23	.48	.22	.41	2.81	1.49	.52	1.09	.36	.15	.13
AC-FT	22,720	20,060	7,800	3,670	6,690	45,790	24,300	8,480	17,760	5,860	2,480	2,130

CAL YR 1970 TOTAL 59,440 MEAN 163 MAX 1,530 MIN 24 CFSM .53 IN 7.23 AC-FT 117,900
WTR YR 1971 TOTAL 84,559 MEAN 232 MAX 2,310 MIN 30 CFSM .76 IN 10.28 AC-FT 167,700

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-10	2315	7.40	1,640	3-31	2345	8.79	2,580
10-28	1600	6.81	1,300	6-20	2315	8.37	2,280
3-17	--	--	* 2,300				

* About

05458500 CEDAR RIVER AT JANESVILLE, IOWA

LOCATION.--Lat 42°38'54", long 92°27'54", in NE1/4 SW1/4 sec.35, T.91 N., R.14 W., Bremer County, on left bank 300 ft downstream from bridge on county highway at Janesville, 3.6 miles upstream from West Fork Cedar River, and at mile 207.7 upstream from mouth of Iowa River.
DRAINAGE AREA.--1,661 sq mi.
PERIOD OF RECORD.--October 1904 to September 1906, October 1914 to September 1927, October 1932 to September 1942, October 1945 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as Red Cedar River at Janesville, 1905-6.
GAGE.--Water-stage recorder. Datum of gage is 868.26 ft above mean sea level. Prior to July 26, 1919, nonrecording gage at site 1,000 ft downstream at datum 4.0 ft lower. July 26, 1919, to Sept. 30, 1927, Nov. 14, 1932, to Sept. 30, 1942, and Apr. 26, 1946, to Nov. 10, 1949, nonrecording gage at county bridge 300 ft upstream at same datum.
AVERAGE DISCHARGE.--51 years (1904-6, 1914-27, 1932-42, 1945-71), 744 cfs (6.08 inches per year, 539,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 11,400 cfs Apr. 2 (gage height, 9.59 ft); minimum daily, 286 cfs Jan. 6.
Period of record: Maximum discharge, 37,000 cfs Mar. 28, 1961 (gage height, 16.33 ft); minimum daily, 28 cfs Oct. 21, 1922.
Flood of Mar. 17, 1945, reached a stage of 16.2 ft, from floodmark at site 300 ft upstream (discharge, 34,300 cfs). Flood of Mar. 16, 1929, reached a stage of about 16 ft, from information by City of Waterloo (discharge not determined).
REMARKS.--Records good except those for winter periods, which are poor. Diurnal fluctuation during low water caused by powerplant at Waverly, 10 miles upstream. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISION (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1906 (M), 1915-16 (M), 1917, 1918-19 (M), 1920-27, 1933-37 (M), 1940-42 (M).

Rating tables (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 24, 26, Dec. 5 to Mar. 17).

1.3	255	4.0	3,170
1.5	363	8.0	8,320
2.0	730	10.0	12,200
3.0	1,840		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	387	1,790	1,160	480	405	2,060	9,670	1,040	984	889	434	291
2	428	1,550	1,200	500	400	2,000	11,100	1,040	1,120	980	424	291
3	363	1,400	1,140	510	400	1,900	9,760	1,020	1,540	929	414	297
4	367	1,350	1,030	420	390	1,780	6,090	1,000	1,280	911	400	306
5	361	1,540	720	330	390	1,640	3,900	996	1,050	871	388	312
6	347	1,720	620	286	380	1,500	3,270	975	920	830	384	313
7	344	1,790	780	310	380	1,380	3,020	1,010	945	804	381	307
8	372	1,630	880	335	375	1,310	2,920	734	1,230	773	375	302
9	1,020	1,520	920	355	380	1,240	2,870	551	1,490	738	407	291
10	2,860	1,580	760	370	375	1,180	2,850	774	1,450	693	343	371
11	3,580	1,680	590	390	375	1,160	2,680	793	1,290	661	363	436
12	3,800	1,790	640	410	375	1,110	2,500	807	1,180	677	358	419
13	3,040	1,940	610	420	380	1,320	2,320	774	1,060	674	346	446
14	2,180	1,820	570	430	375	3,400	2,140	744	918	642	347	388
15	1,760	1,650	520	430	380	3,900	1,920	726	1,050	614	341	352
16	1,450	1,540	640	430	390	4,120	1,750	713	975	595	338	322
17	1,150	1,450	800	425	395	5,400	1,660	720	879	567	303	302
18	1,100	1,350	780	420	450	8,020	1,560	943	729	544	287	300
19	1,030	1,290	660	425	540	7,470	1,490	1,140	671	537	323	308
20	946	1,510	500	425	1,100	6,480	1,450	1,120	764	524	347	307
21	895	2,010	440	420	2,000	6,440	1,390	915	2,150	501	343	307
22	839	2,090	520	425	2,380	5,320	1,330	900	2,750	479	329	302
23	800	1,670	540	420	2,050	4,420	1,270	932	1,570	473	329	313
24	800	1,310	550	410	2,220	3,840	1,210	1,100	1,260	465	318	307
25	785	1,100	540	410	2,050	3,260	1,150	1,210	1,370	461	313	312
26	820	900	520	400	1,900	2,950	1,100	1,050	1,740	459	307	320
27	804	1,450	500	400	2,000	2,710	1,090	988	2,110	466	307	318
28	1,270	1,500	470	400	2,080	3,730	1,080	977	1,580	489	300	318
29	2,080	1,400	450	395	------	4,790	1,050	937	1,300	482	300	291
30	2,460	1,190	450	390	------	7,310	1,030	877	1,240	468	297	324
31	2,180	------	450	400	------	8,340	------	857	------	452	297	------
TOTAL	40,618	46,510	20,950	12,571	25,315	111,480	86,620	28,363	38,595	19,648	10,743	9,773
MEAN	1,310	1,550	676	406	904	3,596	2,887	915	1,287	634	347	326
MAX	3,800	2,090	1,200	510	2,380	8,340	11,100	1,210	2,750	980	434	446
MIN	344	900	440	286	375	1,110	1,030	551	671	452	287	291
CFSM	.79	.93	.41	.24	.54	2.17	1.74	.55	.77	.38	.21	.20
IN.	.91	1.04	.47	.28	.57	2.50	1.94	.64	.86	.44	.24	.22
AC-FT	80,570	92,250	41,550	24,930	50,210	221,100	171,800	56,260	76,550	38,970	21,310	19,380

CAL YR 1970 TOTAL 291,592 MEAN 799 MAX 3,800 MIN 248 CFSM .48 IN 6.53 AC-FT 578,400
WTR YR 1971 TOTAL 451,186 MEAN 1,236 MAX 11,100 MIN 286 CFSM .74 IN 10.10 AC-FT 894,900

PEAK DISCHARGE (BASE, 4,000 CFS).--Mar. 18 (1915) 8,270 cfs (7.97 ft); Apr. 2 (1230) 11,400 cfs (9.59 ft).

05458900 WEST FORK CEDAR RIVER AT FINCHFORD, IOWA

LOCATION.--Lat 42°37'50", long 92°32'24", in SW1/4 SE1/4 sec.6, T.90 N., R.14 W., Black Hawk County, on left bank 100 ft downstream from bridge on county highway C55 at Finchford, 3.2 miles upstream from Shell Rock River, and 5.0 miles upstream from mouth.
DRAINAGE AREA.--846 sq mi.
PERIOD OF RECORD.--October 1945 to current year. Prior to October 1955, published as West Fork Shell Rock River at Finchford.
GAGE.--Water-stage recorder. Datum of gage is 867.15 ft above mean sea level. Prior to June 10, 1955, non-recording gage at same site and datum.
AVERAGE DISCHARGE.--26 years, 413 cfs (6.63 inches per year, 299,200 acre-ft per year); median of yearly mean discharges, 330 cfs (5.3 inches per year, 239,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 6,140 cfs Mar. 18 (gage height, 12.69 ft); minimum daily, 37 cfs Sept. 24, 28.
Period of record: Maximum discharge, 31,900 cfs June 27, 1951 (gage height, 17.28 ft, from floodmarks); minimum daily, 5.9 cfs Feb. 26, 27, 1959.
Flood in March 1929 reached a stage of about 14 ft, from information by local resident (discharge, about 12,800 cfs).
REMARKS.--Records good except those for winter periods, which are poor. An authorized diversion is made into Big Marsh (16 miles upstream from gage) of 2,100 acre-ft each year between September 1 and November 15. Net effect on daily flows at gage is unknown. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1946 (M), 1947.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23-27, Dec. 6 to Mar. 17).

3.7	36	5.0	300	11.0	3,290
4.0	71	8.0	1,300	12.0	4,700
4.5	160	10.0	2,370	13.0	6,900

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	408	618	130	100	1,440	3,820	522	717	324	188	70
2	93	384	576	128	100	1,360	4,520	516	771	351	180	66
3	90	369	537	116	100	1,280	4,630	501	868	336	170	63
4	86	363	528	106	100	1,180	3,740	486	717	310	160	67
5	81	363	495	114	100	1,000	2,890	480	609	320	153	68
6	75	378	310	118	100	890	2,360	483	546	339	147	58
7	72	381	240	122	102	800	2,020	471	654	354	140	56
8	77	363	290	124	102	740	1,780	456	795	339	136	53
9	216	369	310	126	104	700	1,610	438	1,110	312	132	53
10	522	468	292	124	104	660	1,490	426	1,390	315	126	51
11	603	534	268	122	104	650	1,350	414	1,420	324	122	48
12	564	594	248	120	104	650	1,210	402	1,000	432	118	48
13	471	567	232	116	104	670	1,120	393	774	483	114	47
14	402	531	220	108	104	820	1,070	381	660	405	111	46
15	345	504	212	106	104	1,400	1,020	372	585	348	107	44
16	312	486	252	104	106	2,940	928	363	522	303	104	43
17	282	468	270	102	108	5,000	858	360	471	273	100	42
18	264	453	252	100	114	6,020	801	396	441	258	97	41
19	252	447	212	100	154	5,240	756	573	423	258	100	44
20	243	552	164	100	260	4,580	723	735	429	246	99	41
21	237	687	140	102	450	3,820	693	720	435	225	109	39
22	228	798	160	100	580	3,430	663	642	450	210	109	38
23	225	490	156	99	690	2,910	630	591	402	200	100	39
24	225	330	148	100	780	2,390	594	612	372	195	96	37
25	225	315	142	99	920	2,030	570	612	360	228	91	39
26	225	500	138	99	1,100	1,750	549	579	339	243	88	38
27	246	640	136	99	1,280	1,570	561	525	330	216	87	38
28	312	654	136	100	1,380	1,900	564	486	303	205	85	37
29	438	579	134	100	------	2,230	564	456	282	205	82	38
30	468	555	130	100	------	3,130	540	435	291	208	81	40
31	438	------	130	100	------	3,460	------	450	------	198	77	------
TOTAL	8,414	14,530	8,076	3,384	9,454	66,640	44,624	15,276	18,466	8,963	3,609	1,432
MEAN	271	484	261	109	338	2,150	1,487	493	616	289	116	47.7
MAX	603	798	618	130	1,380	6,020	4,630	735	1,420	483	188	70
MIN	72	315	130	99	100	650	540	360	282	195	77	37
CFSM	.32	.57	.31	.13	.40	2.54	1.76	.58	.73	.34	.14	.06
IN.	.37	.64	.36	.15	.42	2.93	1.96	.67	.81	.39	.16	.06
AC-FT	16,690	28,820	16,020	6,710	18,750	132,200	88,510	30,300	36,630	17,780	7,160	2,840

CAL YR 1970 TOTAL 130,175 MEAN 357 MAX 2,390 MIN 64 CFSM .42 IN 5.72 AC-FT 258,200
WTR YR 1971 TOTAL 202,868 MEAN 556 MAX 6,020 MIN 37 CFSM .66 IN 8.92 AC-FT 402,400

PEAK DISCHARGE (BASE, 2,500 CFS).--Mar. 18 (1130) 6,140 cfs (12.69 ft); Apr. 2 (2115) 4,860 cfs (12.10 ft).

05459000 SHELL ROCK RIVER NEAR NORTHWOOD, IOWA

LOCATION.--Lat 43°24'51", long 93°13'14", in NW1/4 NW1/4 sec.9, T.99 N., R.20 W., Worth County, on right bank 50 ft downstream from bridge on county highway A27, 1.3 miles downstream from Drainage ditch 2, 2.0 miles south of Northwood, 3.7 miles upstream from Elk Creek, and 84.5 miles upstream from mouth.
DRAINAGE AREA.--300 sq mi.
PERIOD OF RECORD.--October 1945 to current year. Prior to April 1948 monthly discharge only, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 1,176.48 ft above mean sea level. Prior to May 17, 1956, non-recording gage at same site and datum.
AVERAGE DISCHARGE.--26 years, 134 cfs (6.07 inches per year, 97,080 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,400 cfs Apr. 1 (gage height, 8.08 ft); maximum gage height, 9.11 ft Mar. 29 (backwater from ice); minimum daily discharge, 17 cfs Sept. 7, 8.
Period of record: Maximum discharge, 3,400 cfs Apr. 8, 1965 (gage height, 12.07 ft, backwater from ice); minimum daily, 0.3 cfs Feb. 17-26, 1959.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1308: 1948 (M). WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23 to Dec. 2, Dec. 4 to Mar. 30).

3.6	13	5.0	255
3.7	20	6.0	535
4.0	50	8.0	1,360
4.3	97		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	217	176	78	39	282	1,350	190	326	290	38	21
2	40	213	178	78	38	286	1,220	191	332	249	36	20
3	43	241	175	72	36	264	1,150	180	317	215	34	19
4	44	274	130	58	36	252	1,130	166	287	236	32	19
5	32	282	94	39	35	242	1,060	160	254	262	30	20
6	29	264	75	33	35	238	986	154	224	238	29	18
7	32	249	64	34	34	230	922	140	318	213	29	17
8	84	237	126	35	34	220	860	134	386	183	29	17
9	218	266	132	39	34	218	795	128	343	171	28	27
10	294	352	128	42	34	210	719	117	319	155	26	24
11	286	353	84	45	34	210	646	107	305	152	27	21
12	279	363	104	46	34	208	589	117	338	142	27	21
13	276	376	114	50	35	210	532	106	303	125	24	19
14	271	381	116	51	35	580	486	95	260	119	23	19
15	256	372	114	50	35	860	432	85	228	103	24	18
16	231	347	112	51	36	985	378	86	201	94	22	19
17	207	314	108	53	37	960	359	83	179	84	22	18
18	188	298	104	53	39	1,040	338	101	163	78	22	18
19	172	293	98	52	48	1,090	312	134	221	75	25	19
20	152	287	97	52	98	1,120	294	151	365	66	24	19
21	133	289	96	52	260	1,080	280	123	313	58	23	19
22	124	251	94	51	360	1,040	264	108	245	55	22	20
23	115	124	93	49	340	950	244	103	205	56	21	24
24	119	154	90	48	340	920	238	133	228	51	20	23
25	125	202	90	47	350	920	216	184	492	47	18	23
26	128	198	88	46	360	960	201	178	435	45	19	24
27	205	180	87	46	300	1,080	199	149	352	44	19	23
28	232	168	84	44	280	1,180	198	129	262	42	18	23
29	221	168	82	42	------	1,230	207	117	213	47	18	23
30	214	172	80	41	------	1,280	189	104	278	46	18	25
31	217	------	78	39	------	1,330	------	117	------	43	20	------
TOTAL	5,011	7,885	3,291	1,516	3,376	21,675	16,794	4,070	8,692	3,784	767	620
MEAN	162	263	106	48.9	121	699	560	131	290	122	24.7	20.7
MAX	294	381	178	78	360	1,330	1,350	191	492	290	38	27
MIN	29	124	64	33	34	208	189	83	163	42	18	17
CFSM	.54	.88	.35	.16	.40	2.33	1.87	.44	.97	.41	.08	.07
IN.	.62	.98	.41	.19	.42	2.69	2.08	.50	1.08	.47	.10	.08
AC-FT	9,940	15,640	6,530	3,010	6,700	42,990	33,310	8,070	17,240	7,510	1,520	1,230

CAL YR 1970 TOTAL 41,990 MEAN 115 MAX 381 MIN 17 CFSM .38 IN 5.21 AC-FT 83,290
WTR YR 1971 TOTAL 77,481 MEAN 212 MAX 1,350 MIN 17 CFSM .71 IN 9.61 AC-FT 153,700

PEAK DISCHARGE (BASE, 700 CFS).--Apr. 1 (0315) 1,400 cfs (8.08 ft).

05459500 WINNEBAGO RIVER AT MASON CITY, IOWA

LOCATION.--Lat 43°09'54", long 93°11'33", in NE1/4 NW1/4 sec.3, T.96 N., R.20 W., Cerro Gordo County, on right bank 650 ft upstream from Thirteenth Street Bridge in Mason City, 0.1 mile downstream from Calmus Creek, and 1.0 mile upstream from Willow Creek.
DRAINAGE AREA.--526 sq mi.
PERIOD OF RECORD.--October 1932 to current year. Prior to December 1932, monthly discharge only, published in WSP 1308. Prior to October 1959, published as Lime Creek at Mason City.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,069.59 ft above mean sea level. Prior to Oct. 15, 1934, nonrecording gage at datum 6.47 ft lower. Oct. 15 to Nov. 6, 1934, nonrecording gage at different datum, and Nov. 7, 1934, to Mar. 22, 1935, nonrecording gage at present datum.
AVERAGE DISCHARGE.--39 years, 229 cfs (5.91 inches per year, 165,900 acre-ft per year); median of yearly mean discharges, 190 cfs (4.9 inches per year, 138,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 3,150 cfs Apr. 1 (gage height, 8.24 ft); minimum daily, 37 cfs Aug. 17.
Period of record: Maximum discharge, 10,800 cfs Mar. 30, 1933 (gage height, 15.7 ft, present datum); minimum daily, 2.5 cfs Dec. 29-31, 1933, Aug. 5, 1934.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 825: 1935-36, WSP 1438: Drainage area. WSP 1558: 1933-37, 1943 (M), 1945, 1948.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 23, Dec. 6-11, 19-23, Jan. 21-26, 31, Feb. 4, 5).

3.4	35	5.0	730
3.7	112	6.0	1,400
4.0	225	8.0	2,940

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	321	365	126	75	503	2,780	304	660	611	100	47
2	67	308	366	126	72	492	2,040	289	684	541	94	47
3	52	369	350	119	72	460	1,650	276	651	496	95	43
4	44	476	319	80	72	429	1,440	278	654	494	80	40
5	52	461	262	61	71	402	1,320	268	608	563	76	42
6	52	427	130	58	68	370	1,240	252	522	571	73	42
7	70	379	170	61	66	335	1,170	237	1,660	541	72	42
8	240	345	250	62	67	315	1,100	227	1,540	495	69	44
9	684	576	210	72	68	302	999	216	1,030	435	66	133
10	805	855	160	77	68	285	896	207	785	406	66	118
11	618	715	140	80	69	281	824	204	624	731	64	81
12	496	644	223	81	67	277	772	196	529	747	62	73
13	408	614	221	89	66	337	722	189	561	611	59	67
14	340	618	202	91	66	1,300	667	188	526	491	56	61
15	297	554	204	89	67	2,040	626	177	488	385	54	56
16	264	503	228	90	69	1,840	587	166	443	321	52	54
17	245	473	218	94	72	2,050	550	171	399	273	37	55
18	225	451	216	94	87	2,260	520	198	379	242	45	53
19	208	446	170	94	188	1,570	488	227	380	211	63	56
20	195	457	160	94	464	1,620	463	231	629	192	61	58
21	186	466	176	93	591	1,510	441	227	548	176	54	54
22	180	452	166	92	656	1,390	417	218	496	161	50	61
23	178	210	158	92	589	1,180	397	223	440	160	47	61
24	182	292	154	91	605	1,040	367	229	426	147	48	58
25	179	370	159	90	618	956	342	223	759	136	47	58
26	195	356	155	86	624	921	326	213	629	127	46	62
27	450	317	140	83	517	1,000	329	208	540	119	47	63
28	473	294	132	85	497	1,930	328	198	479	126	46	57
29	398	296	129	86	------	2,150	311	185	450	114	44	58
30	359	310	128	80	------	2,500	305	171	600	110	41	57
31	340	------	126	76	------	2,910	------	177	------	106	43	------
TOTAL	8,556	13,355	6,187	2,692	6,611	34,955	24,417	6,773	19,119	10,839	1,857	1,801
MEAN	276	445	200	86.8	236	1,128	814	218	637	350	59.9	60.0
MAX	805	855	366	126	656	2,910	2,780	304	1,660	747	100	133
MIN	44	210	126	58	66	277	305	166	379	106	37	40
CFSM	.52	.85	.38	.17	.45	2.14	1.55	.41	1.21	.67	.11	.11
IN.	.61	.94	.44	.19	.47	2.47	1.73	.48	1.35	.77	.13	.13
AC-FT	16,970	26,490	12,270	5,340	13,110	69,330	48,430	13,430	37,920	21,500	3,680	3,570

CAL YR 1970 TOTAL 78,485 MEAN 215 MAX 1,350 MIN 33 CFSM .41 IN 5.55 AC-FT 155,700
WTR YR 1971 TOTAL 137,162 MEAN 376 MAX 2,910 MIN 37 CFSM .71 IN 9.70 AC-FT 272,100

PEAK DISCHARGE (BASE, 2,000 CFS).--Mar. 18 (0430) 2,450 cfs (7.37 ft); Apr. 1 (0200) 3,150 cfs (8.24 ft).

05460000 CLEAR LAKE AT CLEAR LAKE, IOWA

LOCATION.Lat 43°08'01", long 93°22'57", in SE1/4 NE1/4 sec.13, T.96 N., R.22 W., Cerro Gordo County, at the public bathing beach in the town of Clear Lake near dam across Clear Creek.
DRAINAGE AREA.--22.6 sq mi.
PERIOD OF RECORD.--May 1933 to current year. (No winter records 1933-52. Record fragmentary Nov. 1952 to June 1959).
GAGE.--Water-stage recorder. Datum of gage is 1,222.24 ft above mean sea level, and 4.60 ft below crest of spillway of dam at outlet. See WSP 1708 for history of changes prior to June 25, 1959.
EXTREMES.--Current year: Maximum gage height, 5.29 ft Apr. 1; minimum, 3.91 ft Sept. 8.
Period of record: Maximum gage height observed, 5.94 ft July 3, 1951; minimum observed, 1.16 ft Dec. 20, 22-24, 1958.
REMARKS.--Lake is formed by concrete dam on Clear Creek with ungated overflow spillway 50 ft long at elevation 1,226.84 ft above mean sea level. Dam constructed in 1903. A previous outlet works had been constructed in 1887. Lake is used for conservation and recreation. Area of lake is approximately 3,600 acres.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.28	4.44	4.64	4.78	4.83	5.04	5.26	4.94	4.73	4.80	4.45	4.05
2	4.28	4.45	4.63		4.82	5.04	5.27	4.91	4.71	4.77	4.43	4.05
3	4.25	4.48	4.64	4.83	4.80	5.04	5.26	4.90	4.70	4.75	4.42	4.03
4	4.22	4.49	4.63	4.89	4.81	5.04	5.26	4.91	4.70	4.80	4.39	4.03
5	4.22	4.49	4.63	4.89		5.03	5.25	4.88	4.72	4.79	4.38	4.03
6	4.22	4.49	4.62	4.89		5.03	5.24	4.86	4.72	4.78	4.38	4.00
7	4.26	4.47	4.61	4.89		5.04	5.23	4.87	4.88	4.77	4.37	3.99
8	4.38	4.45	4.61	4.89	4.84	5.04	5.22	4.86	4.89	4.74	4.36	3.95
9	4.47	4.56	4.62	4.90	4.84	5.04	5.21	4.85	4.88	4.73	4.36	4.15
10	4.46	4.57	4.65	4.91	4.83	5.04	5.20	4.84	4.89	4.74	4.36	4.16
11	4.44	4.56	4.72	4.91	4.83	5.04	5.19	4.82	4.90	4.79	4.33	4.15
12	4.44	4.56	4.72	4.91	4.83	5.01	5.17	4.81	4.90	4.79	4.33	4.14
13	4.44	4.57	4.73	4.90	4.81	4.95	5.16	4.79	4.90	4.77	4.30	4.12
14	4.42	4.58	4.73	4.90	4.80	4.96	5.14	4.79	4.88	4.75	4.26	4.10
15	4.42	4.58	4.73	4.89	4.80		5.13	4.77	4.86	4.73	4.24	4.08
16	4.42	4.58	4.73	4.89	4.79		5.12	4.76	4.85	4.70	4.23	4.06
17	4.42	4.57	4.73	4.89	4.79		5.10	4.77	4.84	4.69	4.23	4.04
18	4.40	4.58	4.73	4.89	4.83		5.07	4.81	4.84	4.71	4.21	4.01
19	4.38	4.61	4.74	4.88	4.94		5.07	4.86	4.86	4.66	4.26	4.01
20	4.38	4.67	4.74	4.88	4.96	5.22	5.06	4.81	4.87	4.64	4.25	4.02
21	4.38	4.65	4.74	4.88	4.95	5.22	5.05	4.76	4.85	4.64	4.24	4.00
22	4.37	4.73	4.75	4.87	4.94	5.22	5.03	4.73	4.84	4.62	4.23	3.99
23	4.38	4.64	4.76	4.86			5.02	4.74	4.81	4.60	4.19	4.02
24	4.39	4.63	4.76	4.85		5.19	4.99	4.80	4.80	4.59	4.20	4.01
25	4.40	4.62	4.77	4.85		5.18	4.97	4.81	4.79	4.59	4.16	4.00
26	4.42	4.62	4.78	4.85	4.97	5.18	4.95	4.76	4.79	4.56	4.11	4.00
27	4.49	4.62	4.77	4.84	5.03	5.17	4.96	4.73	4.78	4.55	4.11	4.02
28	4.48	4.61	4.77	4.84	5.03	5.18	4.96	4.72	4.74	4.53	4.09	4.05
29	4.47	4.61	4.77	4.84	------	5.18	4.93	4.72	4.76	4.51	4.09	4.01
30	4.50	4.61	4.77	4.83	------	5.19	4.95	4.70	4.83	4.48	4.06	4.06
31	4.50	------	4.78	4.83	------	5.22	------	4.70	------	4.47	4.04	------

05462000 SHELL ROCK RIVER AT SHELL ROCK, IOWA

LOCATION.--Lat 42°39'10", long 92°35'46", in NE1/4 NW1/4 sec.11, T.91 N., R.15 W., Butler County, on right bank 400 ft upstream from bridge on county highway C45 in Shell Rock, 2.2 miles downstream from Curry Creek, and 10.4 miles upstream from mouth.
DRAINAGE AREA.--1,746 sq mi.
PERIOD OF RECORD.--June 1953 to current year. Prior to July 1953, monthly discharge only, published in WSP 1728.
GAGE.--Water-stage recorder. Rockfill dam since Oct. 19, 1957. Datum of gage is 885.34 ft above mean sea level.
AVERAGE DISCHARGE.--18 years, 799 cfs (6.21 inches per year, 578,900 acre-ft per year); median of yearly mean discharges, 660 cfs (5.1 inches per year, 478,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 11,900 cfs Apr. 1 (gage height, 13.02 ft); minimum daily, 181 cfs Sept. 5, 6.
Period of record: Maximum discharge, 33,500 cfs Mar. 28, 1961 (gage height, 16.26 ft); minimum daily, 39 cfs Feb. 4-9, 1959.
Flood in 1856 reached a stage of 17.7 ft at bridge 400 ft downstream, from information furnished by Corps of Engineers (discharge, about 45,000 cfs).
REMARKS.--Records good except those for winter periods, which are poor. Diurnal fluctuation at low stages caused by powerplant at Greene. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 1-9; stage-discharge relation affected by ice Nov. 23-25, Dec. 6, 7, Dec. 10 to Feb. 19, Feb. 27, 28, Mar. 7-9).

7.1	163	10.0	3,220
7.5	335	11.0	5,440
8.0	650	13.0	11,800
9.0	1,660		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	418	1,390	1,260	580	370	1,460	11,400	1,150	1,330	1,530	410	234
2	399	1,340	1,340	580	350	1,500	10,800	1,140	1,810	1,530	404	182
3	374	1,310	1,340	530	365	1,530	7,080	1,100	1,750	1,370	457	213
4	354	1,440	1,270	410	370	1,520	5,290	1,080	1,670	1,290	376	201
5	339	1,650	1,210	360	370	1,420	4,710	1,070	1,630	1,280	373	181
6	335	1,630	840	300	370	1,320	4,270	1,050	1,490	1,360	357	181
7	341	1,540	700	330	365	1,200	4,020	1,020	1,990	1,310	350	201
8	365	1,420	965	350	360	1,100	3,860	983	3,770	1,260	345	202
9	1,580	1,440	1,130	370	360	1,060	3,670	949	3,430	1,140	334	204
10	3,070	1,880	920	390	350	1,060	3,310	924	2,560	1,050	331	316
11	2,800	2,300	590	410	340	1,030	3,020	904	2,070	1,010	315	429
12	2,160	2,110	700	430	340	1,020	2,780	876	1,770	1,290	301	334
13	1,820	1,970	650	440	340	1,100	2,650	855	1,590	1,310	303	283
14	1,590	1,950	605	445	350	2,800	2,430	848	1,540	1,130	293	257
15	1,430	1,960	560	445	350	4,920	2,250	856	1,490	1,010	288	241
16	1,310	1,850	740	450	360	5,820	2,110	848	1,410	882	280	227
17	1,220	1,730	900	450	370	5,800	1,970	792	1,250	783	269	219
18	1,140	1,640	900	450	400	6,000	1,840	876	1,150	720	263	215
19	1,080	1,610	800	450	470	6,260	1,750	1,010	1,100	685	273	227
20	1,030	2,000	600	450	732	4,800	1,670	1,050	1,150	622	272	228
21	986	2,170	510	450	1,190	4,810	1,590	1,020	1,730	580	298	225
22	951	2,100	575	440	1,570	4,610	1,520	932	1,610	552	278	224
23	924	1,400	610	440	1,660	4,080	1,460	951	1,440	517	261	229
24	918	900	600	430	1,630	3,600	1,380	988	1,320	510	250	235
25	914	1,160	580	420	1,610	3,310	1,320	990	1,430	498	248	245
26	910	1,520	560	410	1,740	3,120	1,250	986	2,180	474	239	243
27	1,070	1,480	540	390	1,700	3,070	1,230	972	1,900	450	241	243
28	1,810	1,350	575	390	1,580	4,440	1,240	927	1,580	462	233	240
29	1,840	1,260	580	400	------	6,270	1,190	877	1,380	450	223	248
30	1,600	1,220	590	400	------	7,240	1,160	828	1,360	432	221	247
31	1,480	------	580	390	------	8,840	------	815	------	418	249	------
TOTAL	36,558	48,720	24,320	13,180	20,362	106,110	94,220	29,667	51,880	27,905	9,335	7,154
MEAN	1,179	1,624	785	425	727	3,423	3,141	957	1,729	900	301	238
MAX	3,070	2,300	1,340	580	1,740	8,840	11,400	1,150	3,770	1,530	457	429
MIN	335	900	510	300	340	1,020	1,160	792	1,100	418	221	181
CFSM	.68	.93	.45	.24	.42	1.96	1.80	.55	.99	.52	.17	.14
IN.	.78	1.04	.52	.28	.43	2.26	2.01	.63	1.11	.59	.20	.15
AC-FT	72,510	96,640	48,240	26,140	40,390	210,500	186,900	58,840	102,900	55,350	18,520	14,190

CAL YR 1970 TOTAL 298,385 MEAN 817 MAX 5,150 MIN 178 CFSM .47 IN 6.36 AC-FT 591,800
WTR YR 1971 TOTAL 469,411 MEAN 1,286 MAX 11,400 MIN 181 CFSM .74 IN 10.00 AC-FT 931,100

PEAK DISCHARGE (BASE, 4,000 CFS).--Mar. 19 (0245) 6,580 cfs (11.44 ft); Apr. 1 (2400) 11,900 cfs (13.02 ft).

05463000 BEAVER CREEK AT NEW HARTFORD, IOWA

LOCATION.--Lat 42°30'50", long 92°37'55", in SE1/4 SE1/4 sec.28, T.90 N., R.15 W., Butler County, on downstream side of center bridge pier of bridge on county highway T55, 0.2 mile north of New Hartford, and 8 miles upstream from mouth.
DRAINAGE AREA.--347 sq mi.
PERIOD OF RECORD.--October 1945 to current year. Prior to April 1948, monthly discharge only, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 882.44 ft (revised) above mean sea level. Prior to July 14, 1959, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--26 years, 174 cfs (6.81 inches per year, 126,100 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 6,290 cfs Mar. 14 (gage height, 11.08 ft); minimum daily, 19 cfs Sept. 15-18.
Period of record: Maximum discharge, 18,000 cfs June 13, 1947 (gage height, 13.5 ft, from graph based on gage readings), from rating curve extended above 7,300 cfs; minimum daily, 2.3 cfs Jan. 20-24, 1956.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1948-49. WSP 1708: 1947 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used June 3-13, 17-20, July 5-7, 11, 12, July 27 to Aug. 4; stage-discharge relation affected by ice Nov. 22-26, 29, Dec. 6 to Mar. 12).

1.3	19	3.0	149	8.0	1,360
1.5	28	4.0	276	9.0	2,330
1.8	46	6.0	651	10.0	3,840
2.3	83	7.0	905	11.0	5,930

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	112	154	47	30	720	729	161	1,220	142	55	24
2	33	106	145	48	29	620	588	156	758	134	54	23
3	31	105	138	43	29	520	449	149	397	117	51	22
4	29	104	131	39	27	410	396	146	293	110	49	25
5	29	101	130	31	24	328	361	146	251	216	48	36
6	29	100	63	27	25	270	338	148	220	249	47	35
7	29	98	56	26	26	250	325	140	449	220	45	30
8	33	94	80	30	25	230	315	134	456	170	44	26
9	326	104	100	33	25	210	298	130	318	145	45	24
10	656	175	92	36	26	200	276	126	256	154	43	23
11	374	183	84	39	26	190	266	122	220	203	40	22
12	257	160	80	39	26	350	265	118	198	202	38	21
13	207	148	76	39	26	854	262	115	191	156	36	20
14	176	139	71	38	26	3,800	246	113	182	127	36	20
15	152	129	66	38	27	4,710	236	109	166	115	35	19
16	140	130	76	37	28	2,670	229	105	153	104	35	19
17	133	127	88	37	28	1,360	221	104	378	95	34	19
18	124	123	86	37	46	1,160	212	126	259	103	33	19
19	118	122	76	37	108	1,240	210	279	242	120	35	21
20	112	198	60	36	360	900	203	346	218	92	36	23
21	107	288	50	36	2,000	800	198	271	174	84	34	22
22	105	239	58	35	1,860	748	193	227	153	80	31	21
23	104	118	56	35	1,420	563	183	209	142	75	31	21
24	104	154	54	34	1,160	511	174	308	128	74	29	20
25	103	178	52	34	920	459	166	256	121	70	29	21
26	99	180	51	34	780	429	159	208	115	67	28	21
27	102	183	49	33	740	461	172	185	108	64	28	22
28	132	175	49	33	680	1,020	185	171	101	65	27	22
29	140	170	48	32	------	1,170	172	159	92	63	25	21
30	128	161	48	31	------	764	164	150	101	59	24	22
31	120	------	48	30	------	717	------	213	------	57	24	------
TOTAL	4,267	4,404	2,415	1,104	10,527	28,634	8,191	5,330	8,060	3,732	1,149	684
MEAN	138	147	77.9	35.6	376	924	273	172	269	120	37.1	22.8
MAX	656	288	154	48	2,000	4,710	729	346	1,220	249	55	36
MIN	29	94	48	26	24	190	159	104	92	57	24	19
CFSM	.40	.42	.22	.10	1.08	2.66	.79	.50	.78	.35	.11	.07
IN.	.46	.47	.26	.12	1.13	3.07	.88	.57	.86	.40	.12	.07
AC-FT	8,460	8,740	4,790	2,190	20,880	56,800	16,250	10,570	15,990	7,400	2,280	1,360

CAL YR 1970 TOTAL 37,615 MEAN 103 MAX 1,280 MIN 15 CFSM .30 IN 4.03 AC-FT 74,610
WTR YR 1971 TOTAL 78,497 MEAN 215 MAX 4,710 MIN 19 CFSM .62 IN 8.42 AC-FT 155,700

PEAK DISCHARGE (BASE, 1,400 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-21	--	--	*	2,400	6-1	1730	8.12	1,500
3-14	2130	11.08		6,290				

* About

05463500 BLACK HAWK CREEK AT HUDSON, IOWA

LOCATION.--Lat 42°24'28", long 92°27'47", in SW1/4 NE1/4 sec.27, T.88 N., R.14 W., Black Hawk County, on left bank 35 ft downstream from bridge on State Highway 58, 0.2 mile northwest of Chicago Great Western Railway tracks at the west edge of Hudson, 4.5 miles upstream from Prescotts Creek, and 9.6 miles upstream from mouth.
DRAINAGE AREA.--303 sq mi.
PERIOD OF RECORD.--April 1952 to current year.
GAGE.--Water-stage recorder. Datum of gage is 865.03 ft above mean sea level.
AVERAGE DISCHARGE.--19 years, 146 cfs (6.54 inches per year, 105,800 acre-ft per year); median of yearly mean discharges, 110 cfs (4.9 inches per year, 79,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 5,200 cfs Mar. 14 (gage height, 16.35 ft, backwater from ice); maximum gage height, 16.70 ft Feb. 20 (from floodmark, backwater from ice); minimum daily discharge, 14 cfs Sept. 16.
Period of record: Maximum discharge, 19,300 cfs July 9, 1969 (gage height, 18.23 ft); minimum daily, 1.9 cfs Jan. 21-23, July 30, 1956.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Mar. 17-20, Mar. 23 to Apr. 26, June 8-13, July 11 to Sept. 30; stage-discharge relation affected by ice Nov. 23-26, 29, Dec. 6 to Feb. 21, Feb. 24, 25 Feb. 27 to Mar. 6, Mar. 8, 13-16, 21, 22).

4.7	32	9.0	625
5.0	47	12.0	1,360
6.0	128	14.0	2,250
7.0	263		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	102	119	48	32	830	341	106	891	88	43	18
2	45	100	109	48	31	700	268	102	675	75	42	18
3	41	98	105	42	30	560	216	97	375	70	39	17
4	38	96	97	36	30	440	201	96	301	77	38	19
5	37	92	96	28	25	360	179	98	254	160	36	30
6	37	91	53	25	28	280	170	95	236	124	36	27
7	36	89	58	23	28	221	166	89	532	102	35	21
8	38	85	73	27	28	205	162	87	634	175	34	18
9	397	95	84	29	28	198	156	84	343	125	33	18
10	887	151	70	32	28	189	142	81	272	131	32	18
11	511	147	54	35	28	211	142	79	232	319	30	17
12	370	129	58	36	28	317	145	76	232	185	28	17
13	307	122	56	37	28	500	141	74	593	140	28	16
14	257	113	51	38	28	3,110	134	72	323	113	27	16
15	214	106	48	39	29	2,200	131	69	214	99	26	15
16	190	106	63	39	29	1,000	129	67	186	88	25	14
17	176	106	76	38	30	608	129	68	165	79	25	15
18	163	100	75	38	36	698	123	443	154	78	24	15
19	150	101	64	38	800	695	123	804	180	100	25	18
20	141	154	50	37	3,000	483	121	491	144	75	27	19
21	134	221	39	37	2,340	490	120	343	131	67	24	17
22	134	184	45	37	1,730	470	116	268	117	61	23	16
23	132	76	53	37	1,220	415	110	237	108	60	22	16
24	130	100	51	36	1,000	340	105	666	99	58	21	16
25	127	130	49	35	820	299	100	1,150	94	55	21	17
26	122	140	47	35	710	261	96	706	90	52	20	20
27	120	136	45	34	770	248	106	444	85	50	20	19
28	118	129	47	33	840	578	120	362	76	53	20	18
29	113	126	48	33	------	431	112	312	70	49	19	16
30	111	120	48	33	------	333	106	270	91	46	19	17
31	107	------	48	33	------	329	------	272	------	45	18	------
TOTAL	5,432	3,545	1,979	1,096	13,754	17,999	4,410	8,208	7,897	2,999	860	538
MEAN	175	118	63.8	35.4	491	581	147	265	263	96.7	27.7	17.9
MAX	887	221	119	48	3,000	3,110	341	1,150	891	319	43	30
MIN	36	76	39	23	25	189	96	67	70	45	18	14
CFSM	.58	.39	.21	.12	1.62	1.92	.49	.87	.87	.32	.09	.06
IN.	.67	.44	.24	.13	1.69	2.21	.54	1.01	.97	.37	.11	.07
AC-FT	10,770	7,030	3,930	2,170	27,280	35,700	8,750	16,280	15,660	5,950	1,710	1,070

CAL YR 1970 TOTAL 38,329 MEAN 105 MAX 1,880 MIN 15 CFSM .35 IN 4.71 AC-FT 76,030
WTR YR 1971 TOTAL 68,717 MEAN 188 MAX 3,110 MIN 14 CFSM .62 IN 8.44 AC-FT 136,300

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-20	--	--	* 3,600	5-25	2000	11.68	1,260
3-14	--	--	* 5,200				

* About

05464000 CEDAR RIVER AT WATERLOO, IOWA

LOCATION.--Lat 42°29'44", long 92°20'03", in NW1/4 NW1/4 sec.25, T.89 N., R.13 W., Black Hawk County, on left bank at foot of East Seventh Street,0.3 mile upstream from Eleventh Avenue Bridge in Waterloo, 1.1 mile downstream from Black Hawk Creek, and at mile 187.9 above mouth of Iowa River.
DRAINAGE AREA.--5,146 sq mi.
PERIOD OF RECORD.--October 1940 to current year. Prior to April 1941, monthly discharge only, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 824.14 ft above mean sea level.
AVERAGE DISCHARGE.--31 years, 2,625 cfs (6.93 inches per year, 1,902,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 26,700 cfs Apr. 3 (gage height, 13.69 ft); minimum daily, 702 cfs Sept. 18.
Period of record: Maximum discharge, 76,700 cfs Mar. 29, 1961 (gage height, 21.86 ft); minimum daily, 152 cfs Jan. 28, 1959.
Flood of Mar. 16, 1929, reached a stage of about 20 ft, determined by Corps of Engineers, from information by city of Waterloo (discharge, 65,000 cfs). Flood of Apr. 2, 1933, reached a stage about 0.5 ft lower than Mar. 16, 1929, from information by city of Waterloo (discharge, 61,000 cfs).
REMARKS.--Records good except those for winter periods which are fair. Slight diurnal fluctuation during low flow caused by powerplant above station. Records of periodic chemical analyses for the current year are published in Part 2 of this report. One discharge measurement furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1950.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Dec. 6, 7, 10, 13-15, 19-21, 24-30, Jan. 5-13, 16-21, 27, 28, Jan. 30 to Feb. 3, Feb. 6-9).

5.0	660	9.0	12,400
5.5	1,520	14.0	28,000
6.0	2,670		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,150	4,070	3,530	1,630	1,040	6,220	21,500	3,340	5,580	3,080	1,260	784
2	1,080	3,730	3,540	1,660	1,000	5,980	25,200	3,280	5,920	3,270	1,230	765
3	1,030	3,410	3,600	1,520	1,000	5,550	25,900	3,200	5,420	3,160	1,220	726
4	960	3,300	3,360	1,210	1,050	5,190	20,600	3,120	5,010	3,040	1,180	816
5	944	3,510	3,180	1,020	1,020	4,910	14,500	2,940	4,370	2,930	1,120	853
6	924	3,950	2,400	860	990	4,470	11,800	3,010	3,930	3,100	1,090	760
7	907	4,000	1,860	940	940	4,020	10,500	2,950	4,220	3,060	1,070	744
8	983	3,810	2,510	1,010	900	3,730	9,760	2,810	5,760	3,020	1,050	740
9	1,730	3,810	2,930	1,080	940	3,630	9,310	2,380	6,810	2,810	1,230	742
10	5,700	3,700	2,400	1,140	968	3,470	8,830	2,650	6,560	2,710	1,040	724
11	7,480	4,540	1,800	1,200	960	3,390	8,300	2,500	5,920	2,640	799	851
12	7,270	4,870	1,940	1,260	962	3,540	7,730	2,350	5,200	2,740	892	914
13	6,520	4,890	1,900	1,290	958	4,540	7,220	2,270	4,710	3,040	947	938
14	5,190	4,750	1,750	1,300	969	9,230	6,780	2,290	4,210	2,780	939	879
15	4,170	4,560	1,600	1,300	976	17,700	6,280	2,250	3,690	2,470	923	801
16	3,740	4,370	2,130	1,300	989	16,500	5,910	2,210	3,670	2,240	915	755
17	3,150	3,920	2,590	1,300	1,010	16,600	5,550	2,230	3,420	2,030	904	721
18	2,930	3,970	2,590	1,300	1,250	19,800	5,230	2,870	3,230	2,000	830	702
19	2,740	3,840	2,000	1,300	2,160	20,700	4,960	4,080	2,840	1,960	899	741
20	2,550	3,970	1,530	1,300	6,690	19,000	4,760	3,900	2,860	1,770	904	735
21	2,410	5,080	1,330	1,290	7,760	17,000	4,540	3,820	3,580	1,640	936	730
22	2,290	5,510	1,600	1,260	6,480	16,000	4,370	3,280	5,430	1,380	931	718
23	2,280	4,890	1,810	1,240	5,820	14,000	4,090	3,240	4,390	1,460	891	724
24	2,190	2,640	1,770	1,240	5,700	12,000	3,980	3,780	3,610	1,420	866	718
25	2,130	2,940	1,700	1,230	5,520	10,500	3,780	4,460	3,500	1,380	834	752
26	2,120	3,550	1,630	1,160	5,680	9,430	3,610	4,220	3,940	1,390	816	756
27	2,140	4,210	1,580	1,130	6,140	8,720	3,650	3,510	4,890	1,360	815	767
28	2,610	4,440	1,620	1,140	6,120	9,660	3,590	3,240	4,380	1,370	799	773
29	4,030	4,120	1,620	1,170	------	12,400	3,530	3,040	3,550	1,360	786	746
30	4,690	3,650	1,620	1,150	------	15,700	3,400	2,850	3,420	1,340	777	783
31	4,550	------	1,620	1,090	------	18,900	------	3,080	------	1,300	774	------
TOTAL	92,588	122,000	67,040	38,020	75,992	322,480	259,160	95,150	134,020	69,250	29,667	23,158
MEAN	2,987	4,067	2,163	1,226	2,714	10,400	8,639	3,069	4,467	2,234	957	772
MAX	7,480	5,510	3,600	1,660	7,760	20,700	25,900	4,460	6,810	3,270	1,260	938
MIN	907	2,640	1,330	860	900	3,390	3,400	2,210	2,840	1,300	774	702
CFSM	.58	.79	.42	.24	.53	2.02	1.68	.60	.87	.43	.19	.15
IN.	.67	.88	.48	.27	.55	2.33	1.87	.69	.97	.50	.21	.17
AC-FT	183,600	242,000	133,000	75,410	150,700	639,600	514,000	188,700	265,800	137,400	58,840	45,930

CAL YR 1970 TOTAL 868,181 MEAN 2,379 MAX 9,170 MIN 659 CFSM .46 IN 6.28 AC-FT 1,722,000
WTR YR 1971 TOTAL 1,328,525 MEAN 3,640 MAX 25,900 MIN 702 CFSM .71 IN 9.60 AC-FT 2,635,000

PEAK DISCHARGE (BASE, 13,000 CFS).--Mar. 18 (2215) 21,000 cfs (11.89 ft); .pr. 3 (0400)26,700 cfs (13.69 ft).

05464130 FOURMILE CREEK NEAR LINCOLN, IOWA

LOCATION.--Lat 42°13'32", long 92°36'39", in SW1/4 SW1/4 sec.28, T.86 N., R.15 W., Tama County, on left bank 10 ft downstream from bridge on county highway, 1 mile upstream from Half Mile Creek and 4.7 miles southeast of Lincoln.
DRAINAGE AREA.--13.78 sq mi.
PERIOD OF RECORD.--October 1962 to September 1967, October 1969 to current year.
GAGE.--Water-stage recorder and concrete control with V-notch sharp-crested weir. Datum of gage is 931.26 ft above mean sea level.
AVERAGE DISCHARGE.--7 years (1963-67, 1970-71), 7.02 cfs (6.92 inches per year, 5,090 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 708 cfs Mar. 13 (gage height, 12.60 ft); maximum gage height, 13.65 ft Feb. 18 (backwater from ice); minimum daily discharge, 0.20 cfs Sept. 16.
Period of record: Maximum discharge, 708 cfs Mar. 13, 1971 (gage height, 12.60 ft); maximum gage height, 13.65 ft Feb. 18, 1971 (backwater from ice); minimum daily discharge, 0.11 cfs July 29, 1964.
REMARKS.--Records good except those for winter periods, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Mar.15 to Apr. 3; stage-discharge relation affected by ice Nov. 23, Dec. 5, 6, 14, 15, 24-26, Jan. 6-14, Feb. 4-7, Feb. 18 to Mar. 12).

5.6	0.11	6.2	2.2	9.0	123
5.7	.25	6.4	4.1	10.0	183
5.8	.45	6.6	7.9	11.0	261
5.9	.74	7.0	22	12.0	462
6.0	1.1	8.0	69		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	7.1	7.8	4.2	3.5	70	8.3	4.2	33	4.9	2.2	.36
2	4.2	7.0	7.3	3.9	3.5	48	7.2	4.0	12	4.4	2.4	.34
3	3.7	6.5	7.4	2.3	3.4	35	6.7	3.9	9.7	4.1	2.1	.32
4	3.5	6.4	6.4	.40	3.1	34	6.0	4.0	8.7	19	2.1	.85
5	3.4	6.3	7.0	1.6	3.2	37	5.7	4.0	8.3	16	2.0	.48
6	3.2	6.1	7.4	3.0	3.1	20	5.5	3.8	8.2	11	1.9	.32
7	3.1	5.4	6.5	3.6	3.0	11	5.4	3.7	14	9.6	1.8	.32
8	6.1	5.6	6.5	4.3	2.9	6.0	5.4	3.6	8.9	138	1.7	.32
9	147	12	5.8	4.3	2.8	7.2	5.1	3.5	8.0	15	1.5	.32
10	45	12	6.0	4.4	2.5	8.0	5.1	3.5	6.8	69	1.3	.31
11	23	10	6.0	4.4	2.4	20	5.3	3.4	6.4	20	1.2	.29
12	20	9.5	5.7	4.4	2.3	140	5.3	3.3	7.6	12	1.2	.29
13	17	8.9	5.6	4.3	2.3	411	5.0	3.3	33	9.5	1.0	.26
14	15	8.4	6.0	4.3	2.3	253	4.7	3.2	12	7.9	1.0	.23
15	13	7.9	5.6	4.2	2.3	41	4.7	3.1	11	6.9	.96	.23
16	12	7.8	5.5	4.0	2.4	15	5.3	3.1	9.7	5.6	.88	.20
17	11	7.6	5.3	3.8	3.4	21	5.3	3.3	7.0	5.0	.85	.23
18	11	7.2	5.5	3.8	20	37	5.2	34	10	4.7	.78	.27
19	10	8.6	5.3	3.8	100	15	5.0	24	7.8	4.2	.85	.34
20	9.5	14	5.3	3.8	80	15	4.8	12	9.0	3.9	.74	.39
21	9.0	12	5.1	3.7	56	22	5.0	9.7	8.7	3.7	.68	.27
22	10	11	5.2	3.7	45	15	4.7	8.6	7.9	3.5	.62	.22
23	9.8	12	4.8	3.6	37	10	4.5	13	7.1	3.4	.58	.31
24	9.9	9.8	4.6	3.8	33	8.3	4.2	67	4.9	3.2	.55	.23
25	9.6	9.5	4.3	3.9	30	7.3	4.0	22	4.6	3.1	.48	.30
26	8.7	9.0	4.0	3.6	100	6.8	3.9	16	4.6	2.9	.50	.29
27	8.3	8.3	3.7	3.5	140	17	5.3	13	4.2	2.8	.58	.28
28	8.1	8.3	3.4	3.3	110	13	4.7	12	3.9	2.8	.45	.27
29	7.9	8.2	3.3	3.6	------	9.4	4.5	11	3.7	2.7	.40	.22
30	7.7	7.8	4.3	3.6	------	8.8	4.4	10	6.5	2.6	.38	.25
31	7.3	------	4.1	3.6	------	9.6	------	13	------	2.4	.38	------
TOTAL	461.7	260.2	170.7	112.70	799.4	1,371.4	156.2	326.2	287.2	403.8	34.06	9.31
MEAN	14.9	8.67	5.51	3.64	28.6	44.2	5.21	10.5	9.57	13.0	1.10	.31
MAX	147	14	7.8	4.4	140	411	8.3	67	33	138	2.4	.85
MIN	3.1	5.4	3.3	.40	2.3	6.0	3.9	3.1	3.7	2.4	.38	.20
CFSM	1.08	.63	.40	.26	2.08	3.21	.38	.76	.69	.94	.08	.02
IN.	1.25	.70	.46	.30	2.16	3.70	.42	.88	.78	1.09	.09	.03
AC-FT	916	516	339	224	1,590	2,720	310	647	570	801	68	18

CAL YR 1970 TOTAL 2,793.19 MEAN 7.65 MAX 261 MIN .41 CFSM .56 IN 7.54 AC-FT 5,540
WTR YR 1971 TOTAL 4,392.87 MEAN 12.0 MAX 411 MIN .20 CFSM .87 IN 11.86 AC-FT 8,710

PEAK DISCHARGE (BASE, 350 CFS).--Mar. 13 (1900) 708 cfs (12.60 ft); July 8 (0900) 390 cfs (11.72 ft).

05464133 HALF MILE CREEK NEAR GLADBROOK, IOWA

LOCATION.--Lat 42°12'41", long 92°36'39", in SW1/4 SW1/4 sec.33, T.86 N., R.15 W., Tama County, on right bank 10 ft downstream from bridge on county highway, 0.8 mile upstream from mouth, and 5.3 miles northeast of Gladbrook.
DRAINAGE AREA.--1.33 sq mi.
PERIOD OF RECORD.--October 1962 to September 1967, October 1969 to current year.
GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 948.16 ft above mean sea level.
AVERAGE DISCHARGE.--7 years (1963-67, 1970-71), 0.69 cfs (7.02 inches per year, 498 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 99 cfs July 8 (gage height, 6.47 ft); maximum gage height, 8.20 ft Feb. 18 (backwater from ice); no flow Sept. 29, 30.
Period of record: Maximum discharge, 307 cfs July 9, 1965 (gage height, 9.24 ft); no flow for several days in 1964-67, 1971.
REMARKS.--Records fair except those for winter periods, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	.43	.53	.25	.14	.90	.89	.49	5.0	.30	.12	.01
2	.17	.43	.48	.24	.14	.72	3.7	.45	3.0	.28	.13	.01
3	.15	.42	.50	.23	.14	.50	.80	.42	1.8	.27	.12	.01
4	.14	.41	.52	.20	.13	.49	.69	.40	1.3	1.2	.11	.06
5	.14	.39	.46	.21	.13	.48	.66	.37	.92	.75	.12	.04
6	.13	.39	.40	.21	.12	.43	.65	.34	.77	.54	.11	.02
7	.13	.36	.44	.22	.11	.36	.65	.31	.73	.47	.11	.02
8	1.9	.37	.46	.21	.10	.28	.62	.30	.58	3.3	.10	.02
9	6.3	1.2	.41	.21	.11	.25	.57	.30	.51	1.0	.08	.02
10	1.4	.80	.43	.21	.11	.43	.55	.34	.48	1.8	.06	.02
11	1.0	.68	.43	.20	.11	.90	.63	.36	1.8	1.3	.05	.02
12	.87	.63	.42	.20	.11	5.5	.63	.45	1.1	.87	.05	.01
13	.76	.60	.41	.20	.11	14	.57	.54	.59	.71	.05	.01
14	.66	.57	.38	.19	.12	15	.55	.47	.54	.64	.04	.01
15	.62	.55	.40	.19	.12	2.4	.54	.47	.52	.50	.04	.01
16	.59	.54	.43	.19	.13	1.4	.86	1.0	.48	.47	.04	.01
17	.55	.52	.40	.18	.20	2.1	.82	.81	.45	.42	.03	.01
18	.51	.50	.42	.18	4.0	2.8	.73	.73	.48	.37	.03	.01
19	.49	.67	.50	.18	10	.93	.68	3.4	.43	.31	.05	.02
20	.47	.88	.33	.17	8.0	1.6	.68	1.6	.40	.34	.03	.01
21	.45	.76	.35	.18	6.4	2.1	.72	1.3	.38	.31	.03	.01
22	.51	.90	.37	.18	5.4	1.8	.64	1.0	.37	.24	.02	.01
23	.49	.60	.31	.18	4.8	.88	.54	1.2	.34	.24	.02	.01
24	.52	.60	.31	.17	4.3	.85	.48	7.8	.34	.27	.02	.01
25	.49	.58	.27	.17	4.0	.84	.46	1.3	.31	.24	.02	.02
26	.48	.56	.29	.17	22	.78	.46	.95	.32	.24	.02	.01
27	.48	.56	.27	.16	9.0	2.6	.84	.73	.35	.19	.02	.01
28	.50	.54	.24	.16	1.8	1.6	.63	.60	.26	.19	.02	.01
29	.48	.52	.24	.16	------	1.2	.53	.56	.26	.15	.02	0
30	.47	.55	.25	.15	------	1.2	.52	.56	.37	.11	.01	0
31	.44	------	.25	.15	------	1.4	------	.64	------	.12	.01	------
TOTAL	22.49	17.51	11.90	5.90	81.83	66.72	22.29	30.19	25.18	18.14	1.68	.44
MEAN	.73	.58	.38	.19	2.92	2.15	.74	.97	.84	.59	.054	.015
MAX	6.3	1.2	.53	.25	22	15	3.7	7.8	5.0	3.3	.13	.06
MIN	.13	.36	.24	.15	.10	.25	.46	.30	.26	.11	.01	0
CFSM	.55	.44	.29	.14	2.20	1.62	.56	.73	.63	.44	.04	.01
IN.	.63	.49	.33	.17	2.29	1.87	.62	.84	.70	.51	.05	.01
AC-FT	45	35	24	12	162	132	44	60	50	36	3.3	.9

CAL YR 1970 TOTAL 244.10 MEAN .67 MAX 30 MIN .02 CFSM .50 IN 6.83 AC-FT 484
WTR YR 1971 TOTAL 304.27 MEAN .83 MAX 22 MIN 0 CFSM .62 IN 8.51 AC-FT 604

PEAK DISCHARGE (BASE, 90 CFS).--July 8 (0405) 99 cfs (6.47 ft).

05464137 FOURMILE CREEK NEAR TRAER, IOWA

LOCATION.--Lat 42°12'06", long 92°33'44", near center of sec.2, T.85 N., R.15 W., Tama County, on left bank 10 ft downstream from bridge on county highway T69, 2 miles upstream from mouth, and 5.0 miles northwest of Traer.
DRAINAGE AREA.--19.51 sq mi.
PERIOD OF RECORD.--October 1962 to current year.
GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 905.87 ft above mean sea level.
AVERAGE DISCHARGE.--9 years, 10.6 cfs (7.38 inches per year, 7,680 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 496 cfs Mar. 13 (gage height, 12.16 ft); maximum gage height, 13.41 ft Feb. 19 (backwater from ice); minimum daily discharge, 0.24 cfs Sept. 17.
Period of record: Maximum discharge, 628 cfs Mar. 17, 1969 (gage height, 12.39 ft); maximum gage height, 13.41 ft Feb. 19, 1971 (backwater from ice); minimum daily discharge, 0.2 cfs Dec. 16, 17, 23, 1963, Nov. 30, 1964, Feb. 1, 1965 and Jan. 10, 1968.
REMARKS.--Records good except those for winter period, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23, Dec. 24-27, Jan. 4-26, Feb. 18 to Mar. 12).

6.26	.24	6.6	1.3	8.0	44
6.3	.31	6.8	2.8	9.0	122
6.4	.52	7.0	5.3	11.0	264
6.5	.84	7.4	14	12.0	425

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	9.5	10	6.5	4.1	110	12	7.0	37	5.2	2.6	.37
2	5.0	9.5	9.3	5.9	3.9	80	11	6.5	13	4.6	3.1	.32
3	4.5	9.2	9.3	4.3	4.0	58	10	6.3	12	5.5	2.5	.38
4	4.2	8.9	8.5	3.0	4.1	56	9.9	6.5	11	20	2.4	.74
5	4.2	8.8	7.9	4.2	3.3	60	9.7	6.3	10	12	2.1	2.5
6	3.9	8.7	9.5	5.0	4.5	25	9.6	6.1	10	9.0	2.1	2.0
7	3.8	8.2	8.8	5.4	3.9	18	9.4	5.9	16	7.9	2.0	.54
8	5.6	8.2	8.7	5.5	3.7	10	8.7	5.8	10	125	1.9	1.1
9	119	15	8.1	5.6	3.6	11	8.6	5.6	9.8	17	1.8	.83
10	44	15	8.1	5.6	3.6	20	9.4	5.5	9.1	73	1.6	.35
11	28	13	8.7	5.7	3.4	120	9.0	5.5	9.4	25	1.4	.32
12	24	12	8.1	5.7	3.3	230	9.1	5.3	9.2	14	1.3	.30
13	21	11	8.3	5.6	3.2	384	8.6	5.3	30	11	1.2	.33
14	18	11	8.5	5.6	3.3	306	8.1	5.1	14	9.1	1.1	.29
15	16	10	8.3	5.5	3.3	58	8.0	4.9	11	8.0	1.1	.28
16	15	10	8.0	5.5	3.4	24	9.1	4.9	9.5	6.9	.92	.25
17	14	9.7	7.3	5.4	4.4	26	9.8	5.4	8.9	6.4	.84	.24
18	13	9.3	7.5	5.3	50	43	9.1	38	11	6.0	.79	.26
19	12	10	6.8	5.3	150	29	8.7	32	8.8	5.4	1.1	.55
20	12	16	7.1	5.2	120	23	8.3	17	8.1	5.0	.94	.44
21	11	14	7.2	5.2	94	29	8.7	13	7.5	4.7	.73	.36
22	12	13	7.3	5.1	70	25	7.9	12	7.2	4.4	.77	.39
23	12	14	6.3	5.1	58	20	7.5	12	6.7	4.3	.67	.49
24	12	13	6.4	5.0	48	15	7.1	72	6.3	4.0	1.1	.42
25	12	12	6.6	5.3	40	13	6.8	27	6.1	3.8	1.2	.48
26	11	10	6.4	4.9	90	12	6.6	20	6.1	3.7	.99	.46
27	11	10	6.2	4.8	200	21	9.0	17	5.6	3.5	.47	.42
28	11	9.8	6.1	4.8	160	22	8.2	14	5.5	3.6	.44	.40
29	10	10	6.2	4.9	------	15	7.5	13	5.4	3.2	.37	.33
30	10	10	6.6	4.6	------	16	7.3	12	8.5	3.1	.38	.38
31	9.7	------	6.5	4.2	------	17	------	12	------	2.9	.36	------
TOTAL	494.4	328.8	238.6	159.7	1,143.0	1,896	262.7	408.9	322.7	417.2	40.27	16.52
MEAN	15.9	11.0	7.70	5.15	40.8	61.2	8.76	13.2	10.8	13.5	1.30	.55
MAX	119	16	10	6.5	200	384	12	72	37	125	3.1	2.5
MIN	3.8	8.2	6.1	3.0	3.2	10	6.6	4.9	5.4	2.9	.36	.24
CFSM	.82	.56	.39	.26	2.09	3.14	.45	.68	.55	.69	.07	.03
IN.	.94	.63	.45	.30	2.18	3.62	.50	.78	.62	.80	.08	.03
AC-FT	981	652	473	317	2,270	3,760	521	811	640	828	80	33

CAL YR 1970 TOTAL 3,839.89 MEAN 10.5 MAX 215 MIN .44 CFSM .54 IN 7.32 AC-FT 7,620
WTR YR 1971 TOTAL 5,728.79 MEAN 15.7 MAX 384 MIN .24 CFSM .80 IN 10.92 AC-FT 11,360

PEAK DISCHARGE (BASE, 400 CFS).--Mar. 13 (2330) 496 cfs (12.16 ft).

05464500 CEDAR RIVER AT CEDAR RAPIDS, IOWA

LOCATION.--Lat 41°58'14", long 91°40'01", in SE1/4 NW1/4 sec.28, T.83 N., R.7 W., Linn County, on right bank 400 ft upstream from bridge on Eighth Avenue in Cedar Rapids, 2.7 miles upstream from Prairie Creek, and at mile 112.7 upstream from mouth of Iowa River.
DRAINAGE AREA.--6,510 sq mi.
PERIOD OF RECORD.--October 1902 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 700.47 ft above mean sea level. Prior to Aug. 20, 1920, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--69 years, 3,144 cfs (6.56 inches per year, 2,278,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 27,400 cfs Apr. 5 (gage height, 9.64 ft); maximum gage height, 9.86 ft Nov. 25 (backwater from ice); minimum daily discharge, 910 cfs Sept. 24.
Period of record: Maximum discharge, 73,000 cfs Mar. 31, 1961 (gage height, 19.66 ft); maximum gage height, 20.0 ft Mar. 18, 1929; minimum discharge, 53 cfs Jan. 6, 1950, caused by construction operations upstream; minimum daily, 212 cfs Dec. 10, 1949.
Flood in June 1851 reached a stage of about 20 ft (discharge, 65,000 cfs,estimated).
REMARKS.--Records good except those for winter period, which are fair. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 955: 1924. WSP 1308: 1904, 1906-13, 1915, 1917, 1919-24, 1928, 1930. WSP 1438: Drainage area. WSP 1558: 1915-18(M), 1920 (M), 1922 (M), 1929, 1933, 1943.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 25-28, Dec. 6-18, Dec. 20 to Feb. 23, Mar. 14-15).

Oct. 1 to Mar. 14				Mar. 15 to Sept. 30			
3.2	1,240	6.0	10,100	2.9	820	5.0	6,900
4.0	2,850	8.0	18,500	3.5	1,950	7.0	15,500
5.0	5,900			4.0	3,200	10.0	29,000

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,770	5,030	4,140	2,350	2,150	11,400	15,600	4,430	8,340	4,080	1,790	988
2	1,660	4,750	3,810	2,250	2,120	10,300	18,400	4,290	9,180	3,800	1,810	940
3	1,550	4,380	3,750	2,000	2,100	9,510	21,100	4,150	8,340	3,650	1,730	955
4	1,470	4,080	3,720	1,850	2,080	8,920	24,500	4,080	7,580	3,770	1,650	1,040
5	1,400	3,840	3,660	1,700	2,050	7,830	27,200	3,980	6,900	3,740	1,630	1,130
6	1,330	3,810	3,300	1,600	2,000	7,030	24,600	3,840	7,260	3,620	1,570	1,190
7	1,310	4,050	2,800	1,650	1,900	6,450	18,600	3,740	6,180	3,650	1,510	1,110
8	1,330	4,260	2,500	1,800	1,700	5,900	14,600	3,680	5,740	3,680	1,470	988
9	1,990	4,350	2,700	1,900	1,500	5,030	12,800	3,590	6,220	3,800	1,470	1,020
10	3,050	4,260	2,900	2,000	1,600	4,610	11,700	3,260	7,380	5,020	1,430	1,010
11	4,290	4,140	3,000	2,100	1,700	4,410	11,000	3,050	7,940	5,620	1,530	940
12	6,740	4,440	2,500	2,200	1,800	4,320	10,400	3,170	7,700	5,220	1,370	925
13	7,790	5,060	2,300	2,300	1,900	5,130	9,780	2,990	7,460	4,580	1,170	1,020
14	7,660	5,130	2,200	2,400	1,950	7,500	9,140	2,850	7,460	4,260	1,210	1,100
15	6,740	5,060	2,100	2,450	2,000	12,000	8,580	2,780	6,420	3,940	1,230	1,100
16	5,520	4,890	2,000	2,500	2,100	17,600	8,060	2,750	5,660	3,500	1,210	1,060
17	4,640	4,710	2,300	2,550	2,200	20,000	7,620	2,700	4,980	3,140	1,150	988
18	4,230	4,440	3,100	2,600	2,300	20,800	7,180	2,850	4,620	3,500	1,150	940
19	3,750	4,260	3,030	2,600	4,500	19,400	6,780	6,020	4,360	3,770	1,130	970
20	3,500	4,350	2,000	2,600	12,000	20,600	6,420	5,900	4,260	3,080	1,100	955
21	3,350	4,380	1,750	2,580	14,000	22,600	6,140	5,860	3,800	2,700	1,150	955
22	3,250	4,780	1,600	2,560	16,000	22,200	6,020	5,300	3,770	2,450	1,110	925
23	3,150	5,340	1,900	2,530	15,500	20,100	5,620	4,700	5,140	2,220	1,130	925
24	3,030	5,170	2,000	2,500	13,300	18,600	5,340	4,580	5,740	2,090	1,110	910
25	3,000	3,500	1,800	2,490	10,100	16,900	5,020	5,420	4,620	2,110	1,080	925
26	2,900	4,000	1,750	2,400	9,430	14,700	4,540	6,260	4,220	2,070	1,040	925
27	3,030	4,500	1,850	2,250	12,300	13,100	4,900	6,220	4,220	1,970	1,040	970
28	3,130	4,600	2,000	2,300	11,500	11,900	4,860	5,340	4,980	1,950	1,020	955
29	3,230	4,710	2,150	2,280	------	11,500	4,660	4,580	5,180	1,910	1,020	940
30	3,840	4,440	2,250	2,220	------	12,000	4,540	4,220	4,500	1,870	1,010	940
31	4,780	------	2,350	2,200	------	13,600	------	4,080	------	1,850	955	------
TOTAL	108,410	134,710	79,210	69,710	153,780	385,940	325,700	130,660	180,150	102,610	39,975	29,739
MEAN	3,497	4,490	2,555	2,249	5,492	12,450	10,860	4,215	6,005	3,310	1,290	991
MAX	7,790	5,340	4,140	2,600	16,000	22,600	27,200	6,260	9,180	5,620	1,810	1,190
MIN	1,310	3,500	1,600	1,600	1,500	4,320	4,540	2,700	3,770	1,850	955	910
CFSM	.54	.69	.39	.35	.84	1.91	1.67	.65	.92	.51	.20	.15
IN.	.62	.77	.45	.40	.88	2.21	1.86	.75	1.03	.59	.23	.17
AC-FT	215,000	267,200	157,100	138,300	305,000	765,500	646,000	259,200	357,300	203,500	79,290	58,990

CAL YR 1970 TOTAL 1,112,910 MEAN 3,049 MAX 13,800 MIN 854 CFSM .47 IN 6.36 AC-FT 2,207,000
WTR YR 1971 TOTAL 1,740,594 MEAN 4,769 MAX 27,200 MIN 910 CFSM .73 IN 9.95 AC-FT 3,452,000

PEAK DISCHARGE (BASE, 12,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-22	--	--	* 16,300	4-5	1400	9.64	27,400
3-21	2000	8.63	22,800				

* About

05464640 PRAIRIE CREEK AT FAIRFAX, IOWA

LOCATION.--Lat 41°55'22", long 91°47'02", in SE1/4 SW1/4 sec.9, T.82 N., R.8 W., Linn County, on right bank 12 ft upstream from bridge on State Highway 149 at west side of Fairfax, and 10.7 miles upstream from mouth.
DRAINAGE AREA.--178 sq mi.
PERIOD OF RECORD.--October 1966 to current year.
GAGE.--Water-stage recorder. Datum of gage is 737.00 ft above mean sea level.
AVERAGE DISCHARGE.--5 years, 115 cfs (8.77 inches per year, 83,320 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,600 cfs Feb. 20 (gage height, 12.25 ft, backwater from ice); minimum daily, 6.4 cfs Sept. 15.
Period of record: Maximum discharge, 5,640 cfs Mar. 3, 1970 (gage height, 13.14 ft); minimum daily, 3.7 cfs Dec. 26, 1966, Jan. 19, 1967.
An outstanding flood occurred in June 1944 (stage and discharge unknown).
REMARKS.--Records good except those for winter periods, which are poor.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used June 30 to July 10, July 12 to Aug. 4; stage-discharge relation affected by ice Nov. 24-28, Dec. 5 to Mar. 9).

2.3	3.8	3.0	76
2.4	8.0	4.0	280
2.5	14	5.0	540
2.6	22	7.0	1,260
2.8	45	10.0	2,960

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	192	98	70	34	500	85	65	207	50	27	9.6
2	113	179	87	70	33	300	74	62	105	45	24	9.4
3	101	168	87	66	32	200	70	54	82	50	23	8.8
4	93	158	78	58	32	164	66	54	74	56	21	11
5	91	151	78	50	31	130	65	56	68	65	19	28
6	85	146	76	45	30	120	62	60	63	52	19	16
7	85	137	70	40	29	110	63	57	60	46	19	11
8	85	129	72	43	28	100	65	58	56	48	17	9.2
9	458	133	76	46	29	90	65	58	52	41	16	10
10	703	138	78	49	31	80	61	56	51	71	16	10
11	335	129	78	52	33	98	57	56	75	848	14	10
12	254	126	80	50	34	205	65	54	71	269	13	11
13	210	124	80	48	35	528	65	51	65	167	13	11
14	182	116	74	47	35	802	58	50	58	119	12	11
15	158	114	68	45	36	404	56	50	56	89	12	6.4
16	146	113	76	45	37	201	54	46	54	73	12	7.0
17	138	111	82	44	38	157	60	43	60	62	12	7.4
18	128	108	86	44	90	153	60	80	60	56	11	7.7
19	121	104	82	43	1,400	243	57	1,270	57	52	12	11
20	113	126	80	42	2,300	199	60	452	60	45	12	12
21	111	134	70	43	1,000	242	58	212	39	43	12	10
22	120	125	78	44	420	216	52	161	37	38	12	8.9
23	186	107	73	46	280	132	54	145	36	41	12	8.5
24	160	107	70	47	190	119	54	245	33	35	11	8.1
25	160	109	68	48	130	117	52	164	31	32	11	7.1
26	154	108	66	41	480	111	50	122	31	36	11	8.9
27	239	105	66	38	1,700	105	65	103	33	31	10	9.1
28	274	102	66	37	1,100	104	81	91	44	30	10	8.6
29	253	99	66	36	------	92	71	83	43	30	9.7	7.7
30	221	94	68	35	------	87	66	75	50	29	9.7	7.5
31	213	------	70	35	------	87	------	76	------	28	9.6	------
TOTAL	5,812	3,792	2,347	1,447	9,647	6,196	1,871	4,209	1,811	2,677	442.0	301.9
MEAN	187	126	75.7	46.7	345	200	62.4	136	60.4	86.4	14.3	10.1
MAX	703	192	98	70	2,300	802	85	1,270	207	848	27	28
MIN	85	94	66	35	28	80	50	43	31	28	9.6	6.4
CFSM	1.05	.71	.43	.26	1.94	1.12	.35	.76	.34	.49	.08	.06
IN.	1.21	.79	.49	.30	2.02	1.29	.39	.88	.38	.56	.09	.06
AC-FT	11,530	7,520	4,660	2,870	19,130	12,290	3,710	8,350	3,590	5,310	877	599

CAL YR 1970 TOTAL 51,936.0 MEAN 142 MAX 4,300 MIN 14 CFSM .80 IN 10.85 AC-FT 103,000
WTR YR 1971 TOTAL 40,552.9 MEAN 111 MAX 2,300 MIN 6.4 CFSM .62 IN 8.48 AC-FT 80,440

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-20	--	--	*	2,600	5-19	2000	7.72	1,620
2-27	--	--	*	1,900				

* About

05465000 CEDAR RIVER NEAR CONESVILLE, IOWA

LOCATION.--Lat 41°24'36", long 91°17'06", in SW1/4 SW1/4 sec.2, T.76 N., R.4 W., Muscatine County, on right bank 10 ft downstream from bridge on county highway G28, 3.4 miles northeast of Conesville, 5.2 miles downstream from Wapsinonoc Creek, 10.7 miles upstream from mouth, and at mile 39.8 upstream from mouth of Iowa River.
DRAINAGE AREA.--7,785 sq mi.
PERIOD OF RECORD.--September 1939 to current year.
GAGE.--Water-stage recorder. Datum of gage is 581.95 ft above mean sea level. Prior to Feb. 2, 1940, and Apr. 11, 1952, to July 1, 1954, nonrecording gage, Feb. 2, 1940, to Apr. 10, 1952, and July 2, 1954, to Sept. 16, 1963, water-stage recorder, at site 150 ft downstream on left bank at same datum.
AVERAGE DISCHARGE.--32 years, 4,169 cfs (7.27 inches per year, 3,020,000 acre-ft per year); median of yearly mean discharges, 3,640 cfs (6.3 inches per year, 2,640,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 25,100 cfs Apr. 7 (gage height, 13.56 ft); maximum gage height, 13.92 ft Feb. 22 (backwater from ice); minimum daily discharge, 992 cfs Sept. 3.
Period of record: Maximum discharge, 70,800 cfs Apr. 2, 1961 (gage height, 16.62 ft); maximum gage height, 16.85 ft Apr. 12, 1965; minimum daily discharge, 250 cfs Nov. 28, 1955, result of freezeup.
Flood in March 1929 reached a stage of 15.8 ft, from information by local residents to Corps of Engineers.
REMARKS.--Records good except those for winter periods, which are poor.
COOPERATION.--Nine discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1708: 1956.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Oct. 14 to Dec. 7, Mar. 5-31, Apr. 11 to May 31, Sept. 8-30; stage-discharge relation affected by ice Dec. 25 to Mar. 4).

4.4	920	11.0	12,800
5.4	1,940	12.0	16,200
7.0	4,070	13.0	21,200
9.0	7,600	14.0	30,000

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,000	5,210	5,240	3,200	2,600	14,000	13,300	4,880	7,830	5,020	2,410	1,050
2	2,840	5,680	5,050	3,200	2,550	13,000	14,600	4,940	11,000	4,580	2,330	1,020
3	2,700	5,650	4,730	3,100	2,500	12,000	16,100	4,800	10,200	4,340	2,280	992
4	2,480	5,310	4,570	2,900	2,450	11,000	17,800	4,670	9,350	4,130	2,230	1,060
5	2,300	5,020	4,460	2,700	2,400	10,500	19,800	4,570	8,380	4,240	2,110	1,270
6	2,230	4,750	4,380	2,450	2,300	9,620	22,200	4,510	7,620	4,200	2,020	1,490
7	2,180	4,600	4,120	2,200	2,200	8,520	24,400	4,490	7,340	4,090	1,970	1,290
8	2,090	4,680	3,860	2,300	2,000	7,620	23,600	4,410	7,600	4,010	1,900	1,250
9	2,050	4,970	3,760	2,400	1,800	6,920	19,300	4,330	6,530	4,060	1,860	1,230
10	2,230	5,170	3,710	2,500	1,600	6,290	15,300	4,200	6,290	4,340	1,820	1,280
11	3,470	5,100	4,300	2,600	1,700	5,970	13,100	4,020	6,860	8,500	1,810	1,440
12	4,880	5,040	4,730	2,650	1,800	5,880	12,100	3,720	8,170	9,370	1,770	1,230
13	6,200	5,040	4,330	2,700	1,900	5,790	11,400	3,740	8,120	7,280	1,740	1,120
14	7,420	5,510	3,740	2,750	1,950	6,590	10,700	3,640	7,750	8,310	1,610	1,080
15	7,850	5,740	3,380	2,800	2,000	10,000	9,910	3,490	7,660	5,860	1,520	1,150
16	7,520	5,720	3,270	2,900	2,100	13,500	9,220	3,330	7,280	5,150	1,510	1,190
17	6,350	5,620	3,090	2,950	2,400	17,000	8,820	3,230	6,220	4,620	1,470	1,180
18	5,510	5,460	3,490	3,000	3,200	17,800	8,280	3,200	5,560	4,160	1,430	1,140
19	5,000	5,290	4,000	3,050	7,000	18,900	7,750	3,260	5,240	5,830	1,400	1,170
20	4,600	5,160	4,150	3,100	11,000	20,200	7,360	5,340	5,000	7,080	1,370	1,190
21	4,330	5,210	3,490	3,100	15,000	19,700	6,980	6,460	5,840	4,640	1,340	1,180
22	4,190	5,170	3,010	3,050	17,000	19,900	6,570	6,010	5,140	3,940	1,310	1,130
23	4,130	5,220	2,710	3,000	19,000	21,300	6,290	5,600	5,670	3,870	1,290	1,110
24	4,060	5,680	2,550	3,000	18,000	21,400	6,020	5,240	6,330	4,450	1,260	1,070
25	3,950	5,790	2,700	2,950	16,000	20,100	5,790	5,000	6,150	3,320	1,250	1,080
26	3,860	5,260	2,400	2,900	13,000	18,900	5,500	5,340	5,830	3,600	1,240	1,080
27	3,840	4,510	2,600	2,850	11,000	17,200	5,380	5,950	5,020	3,740	1,190	1,090
28	3,920	4,570	2,700	2,800	13,000	15,000	5,550	6,130	4,750	2,900	1,160	1,130
29	4,140	4,880	2,850	2,750	------	13,300	5,390	5,680	4,970	2,690	1,130	1,160
30	4,250	5,140	3,000	2,700	------	12,400	5,190	5,040	5,340	2,580	1,100	1,120
31	4,460	------	3,100	2,650	------	12,300	------	4,720	------	2,570	1,080	------
TOTAL	128,030	156,150	113,470	87,200	179,450	412,600	343,700	143,940	205,040	147,470	49,910	34,972
MEAN	4,130	5,205	3,660	2,813	6,409	13,310	11,460	4,643	6,835	4,757	1,610	1,166
MAX	7,850	5,790	5,240	3,200	19,000	21,400	24,400	6,460	11,000	9,370	2,410	1,490
MIN	2,050	4,510	2,400	2,200	1,600	5,790	5,190	3,200	4,750	2,570	1,080	992
CFSM	.53	.67	.47	.36	.82	1.71	1.47	.60	.88	.61	.21	.15
IN.	.61	.75	.54	.42	.86	1.97	1.64	.69	.98	.70	.24	.17
AC-FT	253,900	309,700	225,100	173,000	355,900	818,400	681,700	285,500	406,700	292,500	99,000	69,370

CAL YR 1970 TOTAL 1,554,620 MEAN 4,259 MAX 19,500 MIN 1,250 CFSM .55 IN 7.43 AC-FT 3,084,000
WTR YR 1971 TOTAL 2,001,932 MEAN 5,485 MAX 24,400 MIN 992 CFSM .70 IN 9.57 AC-FT 3,971,000

PEAK DISCHARGE (BASE, 12,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-22	--	--	* 20,000	4-7	1400	13.56	25,100
3-23	2400	13.17	21,600				

* About

05465500 IOWA RIVER AT WAPELLO, IOWA

LOCATION.--Lat 41°10'48", long 91°10'57", in NW1/4 SE1/4 sec.27, T.74 N., R.3 W., Louisa County, on right bank 30 ft downstream from bridge on State Highway 99 at east edge of Wapello, 13.0 miles downstream from Cedar River, and at mile 16.0.
DRAINAGE AREA.--12,499 sq mi.
PERIOD OF RECORD.--October 1914 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 548.98 ft above mean sea level, adjustment of 1912. Prior to Apr. 16, 1934, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--57 years, 6,355 cfs (6.90 inches per year, 4,604,000 acre-ft per year); median of yearly mean discharges, 5,680 cfs (6.2 inches per year, 4,120,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 38,000 cfs Feb. 28 (gage height, 13.23 ft, backwater from ice); maximum gage height, 14.29 ft Feb. 22 (backwater from ice); minimum daily discharge, 1,490 cfs Sept. 15, 24.
Period of record: Maximum discharge, 94,000 cfs June 18, 1947 (gage height, 16.14 ft); maximum gage height, 17.40 ft July 15, 1969; minimum daily discharge, 300 cfs Nov. 28, 1955, result of freezeup.
remarks.--Records good except those for winter period, which are poor. Flow regulated by Coralville Reservoir since Sept. 17, 1958 (see sta. 05453510). Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1308: 1917, 1923-30, 1932. WSP 1438: Drainage area. WSP 1558: 1918, 1923-25 (M), 1929. WSP 1708: 1956.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7,210	8,080	7,620	4,700	3,600	36,200	16,900	7,660	7,500	6,590	3,370	1,620
2	6,510	8,600	7,790	4,700	3,500	32,800	17,700	7,480	12,800	6,130	3,200	1,600
3	5,910	8,800	7,560	4,600	3,500	27,900	18,800	7,290	12,200	5,800	3,130	1,580
4	5,620	8,510	7,330	4,500	3,400	23,700	20,400	6,970	11,100	5,570	3,030	1,580
5	5,330	8,190	7,230	4,300	3,300	22,300	22,200	6,550	10,200	5,570	2,910	1,780
6	5,100	7,920	7,090	4,150	3,200	21,600	24,500	6,490	9,600	5,720	2,790	2,100
7	4,810	7,540	6,890	4,000	3,100	20,000	27,200	6,630	9,180	6,030	2,720	1,960
8	4,690	7,480	6,510	4,050	3,050	18,800	29,200	6,850	9,650	6,090	2,680	1,770
9	4,710	7,690	5,970	4,100	3,000	17,600	28,100	6,490	8,440	6,430	2,630	1,710
10	6,210	8,060	5,890	4,150	3,500	16,900	22,800	6,410	7,980	6,570	2,640	1,820
11	9,090	8,170	7,410	4,200	4,000	16,200	17,900	6,210	8,440	12,800	2,540	1,810
12	10,600	8,020	8,440	4,300	4,200	16,000	15,500	5,910	10,200	16,400	2,450	1,720
13	10,700	7,850	7,730	4,300	4,250	15,600	14,700	5,700	10,200	12,600	2,430	1,580
14	12,200	8,080	6,870	4,400	4,200	15,800	13,800	5,630	9,720	12,900	2,320	1,520
15	12,600	8,300	6,290	4,400	4,150	17,600	12,900	5,370	10,400	11,000	2,200	1,490
16	12,200	8,300	6,970	4,450	4,100	19,900	12,200	5,210	10,700	9,280	2,180	1,530
17	11,400	8,270	7,230	4,500	4,050	22,200	11,700	5,090	9,910	8,080	2,140	1,540
18	10,600	8,150	7,520	4,600	6,000	24,400	11,300	5,040	9,120	6,850	2,090	1,540
19	9,770	8,040	7,690	4,600	14,000	25,800	10,800	4,920	8,300	6,450	2,060	1,570
20	9,350	8,020	7,370	4,600	18,000	27,300	10,400	6,110	7,390	8,730	2,010	1,600
21	8,840	7,940	6,830	4,500	23,000	28,900	10,000	9,350	7,350	6,750	2,000	1,620
22	7,620	7,900	6,110	4,400	30,000	29,000	9,530	8,470	7,980	5,610	1,960	1,540
23	6,990	7,700	5,680	4,300	31,000	29,600	8,800	8,060	8,150	5,230	1,930	1,500
24	7,520	7,810	5,410	4,200	28,000	30,600	8,470	7,730	8,300	6,570	1,880	1,490
25	7,290	8,170	5,040	4,100	24,000	30,500	8,170	7,270	7,640	6,350	1,860	1,530
26	6,990	8,060	4,800	4,000	22,000	29,000	7,880	7,170	7,460	4,870	1,840	1,540
27	6,990	7,270	4,700	3,900	28,000	27,100	7,850	7,520	6,930	5,570	1,810	1,540
28	7,460	6,850	4,600	3,800	32,000	24,400	7,790	7,790	6,430	4,750	1,750	1,520
29	8,300	7,110	4,700	3,750	------	20,900	8,000	7,620	6,310	4,050	1,710	1,520
30	8,270	7,330	4,700	3,700	------	18,500	7,920	6,970	6,590	3,680	1,670	1,520
31	7,750	------	4,700	3,650	------	16,800	------	6,530	------	3,550	1,650	------
TOTAL	248,630	238,210	200,670	131,900	318,100	723,900	443,410	208,490	266,170	222,570	71,580	48,740
MEAN	8,020	7,940	6,473	4,255	11,360	23,350	14,780	6,725	8,872	7,180	2,309	1,625
MAX	12,600	8,800	8,440	4,700	32,000	36,200	29,200	9,350	12,800	16,400	3,370	2,100
MIN	4,690	6,850	4,600	3,650	3,000	15,600	7,790	4,920	6,310	3,550	1,650	1,490
AC-FT	493,200	472,500	398,000	261,600	631,000	1,436M	879,500	413,500	527,900	441,500	142,000	96,680

CAL YR 1970 TOTAL 2,794,130 MEAN 7,655 MAX 33,600 MIN 2,150 AC-FT 5,542,000
WTR YR 1971 TOTAL 3,122,370 MEAN 8,554 MAX 36,200 MIN 1,490 AC-FT 6,193,000

05470000 SOUTH SKUNK RIVER NEAR AMES, IOWA

LOCATION.--Lat 42°04'05", long 93°37'02", in NW1/4 SW1/4 sec.23, T.84 N., R.24 W., Story County, on left bank 2.5 miles north of Ames, 3.5 miles downstream from Keigley Branch, 5.2 miles upstream from Squaw Creek, and at mile 228.1 upstream from mouth of Skunk River.
DRAINAGE AREA.--315 sq mi.
PERIOD OF RECORD.--July 1920 to September 1927, October 1932 to current year. Monthly discharge only for some periods, published in WSP 1308. Prior to October 1966, published as Skunk River near Ames.
GAGE.--Water-stage recorder. Concrete control since July 21, 1934. Datum of gage is 893.61 ft above mean sea level (Iowa Highway Commission bench mark). Prior to Aug. 25, 1921, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--46 years (1920-27, 1932-71), 135 cfs (5.82 inches per year, 97,810 acre-ft per year); median of yearly mean discharges, 110 cfs (4.7 inches per year, 79,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 3,660 cfs Feb. 20 (gage height, 7.67 ft); maximum gage height, 9.10 ft Feb. 19 (backwater from ice); minimum daily discharge, 1.1 cfs Sept. 24.
Period of record: Maximum discharge, 8,630 cfs June 10, 1954 (gage height, 13.66 ft); maximum gage height, 13.90 ft May 20, 1944; no flow at times in 1934, 1937, 1953-57.
REMARKS.--Records good except those for winter periods, which are poor. Several diversions for irrigation above station. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1308: 1921, 1925-26, 1934-35 (M), 1937 (M), 1939 (M), 1947-50 (M), WRD Iowa. 1967: 1965.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 23-26, Dec. 5-7, 13-15, 24-27, Jan. 5 to Feb. 19, Mar. 2-4).

1.7	.45	2.2	17	3.5	335
1.8	1.5	2.4	36	4.0	575
1.9	3.3	2.7	85	5.0	1,290
2.0	6.4	3.0	158	8.0	3,940

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	188	184	58	31	507	307	84	99	225	14	5.0
2	41	177	166	58	30	346	259	80	89	150	13	4.8
3	36	167	162	54	27	314	225	74	85	102	11	4.7
4	32	157	150	31	28	310	204	75	80	129	10	5.2
5	31	151	136	21	28	331	185	77	77	221	9.6	6.3
6	31	152	76	17	28	247	178	73	84	689	8.9	5.8
7	29	142	92	26	28	172	176	68	124	476	8.3	4.8
8	64	132	162	29	25	176	174	66	295	326	7.9	4.7
9	506	178	147	32	22	201	162	63	197	213	7.4	4.3
10	580	241	107	31	24	228	145	61	148	196	7.1	3.2
11	390	235	72	33	25	608	149	61	123	271	6.4	2.4
12	299	214	138	34	25	1,140	151	57	106	222	5.8	2.5
13	248	199	110	40	25	1,710	147	55	95	155	6.0	2.7
14	209	184	98	39	24	2,250	138	55	99	116	9.2	2.7
15	179	177	89	38	24	1,710	137	50	88	94	9.8	2.6
16	159	176	136	38	25	860	136	46	77	77	8.9	2.6
17	148	169	118	37	26	618	130	46	67	64	8.3	2.5
18	137	158	110	36	350	713	122	240	63	54	7.9	2.1
19	127	167	72	35	2,000	773	119	436	57	45	8.3	1.5
20	119	347	62	34	3,130	543	117	333	51	38	8.7	1.6
21	113	465	89	35	1,830	632	115	254	45	33	7.6	1.7
22	109	368	96	37	813	611	106	209	43	29	7.2	1.6
23	105	230	81	38	442	417	99	191	39	30	6.7	1.4
24	108	204	62	39	398	329	95	187	35	31	5.7	1.1
25	103	250	63	38	417	306	89	161	31	24	5.7	1.3
26	103	228	64	39	460	267	84	139	30	22	5.4	1.2
27	231	199	66	38	647	255	101	125	26	20	5.3	1.4
28	354	180	58	38	561	342	97	116	22	23	5.6	1.3
29	287	179	54	37	------	343	86	109	21	20	4.9	1.2
30	244	175	54	35	------	298	83	102	146	18	5.4	1.2
31	210	------	56	32	------	302	------	103	------	16	4.8	------
TOTAL	5,378	6,189	3,130	1,127	11,493	17,859	4,316	3,796	2,542	4,129	240.8	85.4
MEAN	173	206	101	36.4	410	576	144	122	84.7	133	7.77	2.85
MAX	580	465	184	58	3,130	2,250	307	436	295	689	14	6.3
MIN	29	132	54	17	22	172	83	46	21	16	4.8	1.1
CFSM	.55	.65	.32	.12	1.30	1.83	.46	.39	.27	.42	.02	.009
IN.	.64	.73	.37	.13	1.36	2.11	.51	.45	.30	.49	.03	.01
AC-FT	10,670	12,280	6,210	2,240	22,800	35,420	8,560	7,530	5,040	8,190	478	169

CAL YR 1970 TOTAL 36,175.3 MEAN 99.1 MAX 580 MIN 4.5 CFSM .31 IN 4.27 AC-FT 71,750
WTR YR 1971 TOTAL 60,285.2 MEAN 165 MAX 3,130 MIN 1.1 CFSM .52 IN 7.12 AC-FT 119,600

PEAK DISCHARGE (BASE, 1,500 CFS).--Feb. 20 (0245) 3,660 cfs (7.67 ft); Mar. 13 (2100) 2,300 cfs (6.03 ft).

05470500 SQUAW CREEK AT AMES, IOWA

LOCATION.--Lat 42°01'21", long 93°37'45", in NE1/4 NW1/4 sec.10, T.83 N., R.24 W., Story County, on left bank 65 ft downstream from Lincoln Way Bridge in Ames, 0.1 mile downstream from College Creek, and 1.8 miles upstream from mouth.
DRAINAGE AREA.--204 sq mi.
PERIOD OF RECORD.--May 1919 to April 1927, May 1965 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 881.00 ft above mean sea level (levels by Iowa State University). Prior to March 11, 1925, nonrecording gage at site 0.6 mile upstream at different datum. March 11, 1925 to April 30, 1927, nonrecording gage at site 65 ft upstream at datum about 4 ft higher.
AVERAGE DISCHARGE.--14 years, 92.0 cfs (6.12 inches per year, 66,650 acre-ft per year); median of yearly mean discharges, 86 cfs (5.7 inches per year, 62,300 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 3,650 cfs Feb. 19 (gage height, 10.09 ft); no flow Sept. 1-3.
Period of record: Maximum discharge, 4,130 cfs July 17, 1922 (gage height, 10.7 ft, site and datum then in use, from graph based on gage readings); maximum gage height, 10.74 ft May 13, 1970; no flow at times most years.
Flood of June 4, 1918, reached a stage of 14.5 ft, from flood marks, site and datum used 1919-25 (discharge, 6,900 cfs). Flood of Mar. 1, 1965, reached a stage of 10.7 ft, from graph based on gage readings, at present site and datum (discharge, 4,200 cfs).
REVISIONS.--The maximum discharge for the water year 1970 has been revised to 3,540 cfs May 13, 1970 (gage height, 10.74 ft), superseding figure published in WRD Iowa, 1970.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1308: Drainage area, 1920-22 (M), 1923, 1924-25 (M), 1926, 1927 (M), WRD Iowa. 1966: 1965, WRD Iowa. 1971: 1970 (M).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	96	114	39	18	360	170	48	64	100	8.0	0
2	33	94	106	38	18	235	145	46	60	74	6.8	0
3	29	89	103	36	16	186	132	44	58	60	5.2	0
4	27	84	80	20	17	203	127	46	56	74	4.3	.11
5	27	82	82	14	18	259	119	46	54	50	3.4	.06
6	28	82	48	17	18	171	112	45	62	60	2.7	.02
7	27	77	77	19	18	121	111	52	66	110	2.2	.02
8	80	77	95	20	17	126	111	47	60	150	1.8	.03
9	334	103	80	20	17	138	103	44	58	94	1.5	.04
10	252	108	59	20	18	186	93	41	56	78	1.3	.04
11	178	103	43	21	18	722	94	40	52	88	1.1	.04
12	145	98	77	22	17	980	91	38	50	58	.90	.04
13	123	96	64	24	17	1,270	84	37	48	42	.80	.04
14	106	91	52	25	17	1,340	81	37	47	34	.80	.05
15	96	84	48	25	18	870	78	36	90	30	.82	.04
16	86	86	75	24	19	496	77	36	70	28	.84	.03
17	82	86	69	23	25	328	72	40	48	26	.80	.03
18	77	86	69	23	1,000	461	69	300	60	25	.72	.04
19	71	98	35	22	3,320	431	68	300	43	24	.70	.09
20	69	178	50	22	2,320	333	65	250	37	23	.64	.06
21	66	206	57	23	1,150	422	67	190	32	22	.60	.07
22	66	156	57	24	510	353	60	160	28	21	.52	.08
23	66	91	50	24	275	231	56	150	25	21	.45	.10
24	66	138	40	23	277	185	52	130	23	19	.40	.09
25	62	152	41	22	222	176	48	100	21	17	.37	.37
26	69	132	41	21	326	157	46	90	19	15	.35	.11
27	145	111	42	21	549	154	64	80	17	15	.33	.11
28	163	106	38	21	422	213	54	74	15	15	.32	.12
29	132	111	35	20	------	195	48	70	14	13	.30	.12
30	120	106	35	20	------	182	50	68	90	12	.30	.17
31	108	------	36	19	------	174	------	68	------	10	.29	------
TOTAL	2,971	3,207	1,898	712	10,677	11,658	2,547	2,753	1,423	1,408	49.55	2.12
MEAN	95.8	107	61.2	23.0	381	376	84.9	88.8	47.4	45.4	1.60	.071
MAX	334	206	114	39	3,320	1,340	170	300	90	150	8.0	.37
MIN	27	77	35	14	16	121	46	36	14	10	.29	0
CFSM	.47	.52	.30	.11	1.87	1.84	.42	.44	.23	.22	.008	.0003
IN.	.54	.58	.35	.13	1.95	2.13	.46	.50	.26	.26	.009	0
AC-FT	5,890	6,360	3,760	1,410	21,180	23,120	5,050	5,460	2,820	2,790	98	4.2

CAL YR 1970 TOTAL 31,852.20 MEAN 87.3 MAX 1,810 MIN 2.5 CFSM .43 IN 5.81 AC-FT 63,180
WTR YR 1971 TOTAL 39,305.67 MEAN 108 MAX 3,320 MIN 0 CFSM .53 IN 7.17 AC-FT 77,960

PEAK DISCHARGE (BASE, 1,000 CFS).-- Feb. 19 (1930) 3,650 cfs (10.09 ft); Mar. 14 (0230) 1,560 cfs (5.52 ft).

NOTE.--Stage discharge relation indefinite May 5 to Sept. 30

05471000 SOUTH SKUNK RIVER BELOW SQUAW CREEK NEAR AMES, IOWA

LOCATION.--Lat 42°00'31", long 93°35'37", in NE1/4 NW1/4 sec.13, T.83 N., R.24 W., Story County, on right bank 15 ft downstream from bridge on county highway, 0.2 mile downstream from Squaw Creek, 0.2 mile upstream from bridge on U.S. Highway 30, 2 miles southeast of Ames, and at mile 222.6 upstream from mouth of Skunk River.
DRAINAGE AREA.--556 sq mi.
PERIOD OF RECORD.--October 1952 to current year. Prior to October 1966, published as Skunk River below Squaw Creek near Ames.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 867.10 ft above mean sea level.
AVERAGE DISCHARGE.--19 years, 243 cfs (5.94 inches per year, 176,100 acre-ft per year); median of yearly mean discharges, 220 cfs (5.4 inches per year, 159,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 8,610 cfs Feb. 20 (gage height, 12.67 ft); minimum daily, 1.2 cfs Sept. 18, 22.
Period of record: Maximum discharge, 9,260 cfs Mar. 30, 1960 (gage height, 13.20 ft); no flow at times most years.
Flood of May 19, 1944, reached a stage of 13 ft, from floodmarks (discharge, 10,000 cfs).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report. Low flows are affected by pumpage by City of Ames from surficial aquifer and do not represent the natural flow of the stream.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Oct. 9 to Nov. 21, Nov. 26 to Dec. 5, Dec. 8-18, May 9-17, July 9-18; stage-discharge relation affected by ice Nov. 22-25, Dec. 6, 7, Dec. 19 to Feb. 19, Feb. 24, 25, Mar. 1-4).

Oct. 1 to Feb. 19

1.0	58	0	5.0	0.6	48	5.0	1,480
1.5	148	0.1	9.4	0.8	82	7.0	2,580
		0.2	14	1.0	128	9.0	4,100
		0.3	19	2.0	375	12.0	7,500
		0.4	27	3.0	680		

Feb. 20 to Sept. 30

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	308	286	100	47	680	501	158	186	328	28	6.4
2	92	292	260	100	47	560	423	149	167	258	25	5.9
3	79	279	252	92	43	480	375	140	153	195	19	5.8
4	76	264	230	60	43	540	345	140	146	235	17	10
5	72	253	220	36	43	642	317	146	135	265	16	8.1
6	69	255	110	31	43	468	302	137	149	670	15	7.0
7	66	241	160	40	42	330	302	130	190	606	14	4.9
8	148	234	246	47	40	310	302	123	351	639	13	4.5
9	803	305	230	50	37	345	278	119	278	363	13	4.6
10	886	348	185	49	42	408	255	114	230	305	12	3.4
11	611	348	139	52	44	1,200	262	107	206	345	11	2.8
12	478	322	210	56	44	2,010	260	98	186	285	11	2.3
13	397	306	182	61	42	3,060	252	91	169	208	10	2.2
14	340	281	146	60	42	4,000	235	96	172	160	11	1.9
15	297	267	142	59	43	2,520	235	89	186	130	12	1.6
16	268	269	212	58	44	1,300	235	78	176	116	12	1.5
17	252	263	192	56	45	958	228	80	142	105	11	1.3
18	237	250	179	56	1,100	1,130	217	549	135	95	11	1.2
19	222	277	118	54	5,400	1,220	213	754	119	76	12	2.0
20	209	485	100	54	7,080	890	208	600	103	64	11	1.5
21	202	660	120	56	3,190	1,020	208	474	84	60	11	1.4
22	197	450	166	58	1,380	954	190	399	84	52	9.9	1.2
23	193	300	140	60	824	666	174	381	72	52	9.6	1.9
24	194	320	116	60	640	546	167	357	63	49	8.7	1.3
25	186	370	116	58	620	498	156	290	56	42	8.3	2.2
26	197	367	118	57	816	441	146	255	51	38	8.3	1.4
27	365	308	120	57	1,120	429	211	232	46	37	7.7	1.4
28	506	284	100	56	930	558	181	215	39	38	7.6	1.8
29	440	282	95	54	------	558	165	206	44	34	7.6	1.7
30	394	274	95	52	------	498	158	197	248	30	7.1	1.5
31	341	------	98	48	------	510	------	197	------	26	6.3	------
TOTAL	8,918	9,462	5,083	1,787	23,831	29,729	7,501	7,101	4,366	5,906	376.1	94.7
MEAN	288	315	164	57.6	851	959	250	229	146	191	12.1	3.16
MAX	886	660	286	100	7,080	4,000	501	754	351	670	28	10
MIN	66	234	95	31	37	310	146	78	39	26	6.3	1.2
CFSM	.52	.57	.30	.10	1.53	1.72	.45	.41	.26	.34	.02	.006
IN.	.60	.63	.34	.12	1.59	1.99	.50	.48	.29	.40	.03	.006
AC-FT	17,690	18,770	10,080	3,540	47,270	58,970	14,880	14,080	8,660	11,710	746	188

CAL YR 1970 TOTAL 73,657.0 MEAN 202 MAX 2,920 MIN 7.8 CFSM .36 IN 4.93 AC-FT 146,100
WTR YR 1971 TOTAL 104,154.8 MEAN 285 MAX 7,080 MIN 1.2 CFSM .51 IN 6.97 AC-FT 206,600

PEAK DISCHARGE (BASE, 2,500 CFS).--Feb. 20 (0200) 8,610 cfs (12.67 ft); Mar. 14 (0800) 4,270 cfs (9.21 ft).

05471200 INDIAN CREEK NEAR MINGO, IOWA

LOCATION.--Lat 41°48'17", long 93°18'26", in NW1/4 NW1/4 sec.28, T.81 N., R.21 W., Jasper County, on right bank 30 ft downstream from bridge on State Highway 117, 0.7 mile downstream from Wolf Creek, 2.9 miles northwest of Mingo, and 3.3 miles upstream from Clear Creek.
DRAINAGE AREA.--276 sq mi.
PERIOD OF RECORD.--May 1958 to current year.
GAGE.--Water-stage recorder. Datum of gage is 810.47 ft above mean sea level.
AVERAGE DISCHARGE.--13 years, 150 cfs (7.38 inches per year, 108,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 4,300 cfs Feb. 20 (gage height, 15.65 ft, backwater from ice); minimum daily, 0.72 cfs Sept. 15.
Period of record: Maximum discharge, 7,380 cfs June 12, 1966 (gage height, 16.41 ft); minimum daily, 0.14 cfs Jan. 11, 12, 1968.
Flood of May 20, 1944, reached a stage of 21.4 ft, from information by local residents (discharge not determined).
REMARKS.--Records good except those for winter period, which are poor.
REVISIONS (WATER YEARS).--WSP 1728: 1958 (M), 1959 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 30 to Dec. 6, June 22 to July 14; stage-discharge relation affected by ice Dec. 7, Dec. 10 to Mar. 8).

3.9	.72	4.4	15	9.0	1,030
4.0	1.8	4.7	40	11.0	1,670
4.1	3.5	5.0	78	13.0	2,900
4.2	6.1	5.5.	166	14.0	4,100
4.3	9.8	6.0	276		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	148	160	60	28	800	273	100	200	130	11	2.0
2	137	152	141	58	27	700	226	89	190	122	17	2.0
3	114	154	139	56	26	600	200	83	160	117	15	2.2
4	105	152	124	50	25	540	180	89	143	112	10	3.5
5	102	148	117	30	24	570	169	93	133	116	8.9	6.2
6	114	147	100	25	24	500	163	88	126	110	8.0	3.8
7	117	138	150	27	23	400	162	89	131	160	7.7	2.1
8	124	128	148	29	22	350	166	88	122	180	7.9	1.3
9	655	161	137	31	23	317	162	77	111	220	7.0	1.1
10	761	170	120	33	24	293	143	76	103	190	6.4	1.0
11	562	169	90	34	25	535	144	79	96	150	5.2	.91
12	491	162	130	35	26	822	144	76	88	130	4.6	.93
13	430	155	110	36	25	1,020	131	75	83	112	4.8	.91
14	372	139	100	35	26	1,400	118	76	100	82	4.5	.90
15	306	130	95	34	27	1,040	121	73	87	70	4.6	.72
16	271	132	130	34	30	669	123	72	73	56	4.0	.81
17	250	123	120	33	35	532	117	75	66	44	3.5	.81
18	229	123	110	33	500	569	107	265	64	36	3.2	.93
19	214	126	90	32	3,500	626	103	1,110	61	34	3.5	1.3
20	221	247	70	32	4,000	516	99	735	59	27	3.3	1.4
21	189	302	90	33	2,500	583	112	552	51	22	3.3	1.1
22	212	269	110	34	1,500	542	95	458	50	18	3.5	.83
23	222	177	90	35	900	397	87	414	51	18	3.2	.90
24	211	181	65	34	700	322	85	766	48	35	2.8	.81
25	188	263	66	34	600	287	80	808	47	23	2.4	1.1
26	152	228	68	34	800	252	77	487	58	18	2.4	1.2
27	164	184	70	33	1,000	250	118	379	59	15	2.5	1.3
28	139	152	65	32	900	323	121	319	57	15	2.3	1.2
29	123	154	55	32	------	306	115	273	55	14	2.1	1.0
30	152	152	56	31	------	272	109	238	120	12	2.1	.91
31	160	------	58	30	------	272	------	217	------	11	2.0	------
TOTAL	7,643	5,066	3,174	1,099	17,340	16,605	4,050	8,419	2,792	2,399	168.7	45.17
MEAN	247	169	102	35.5	619	536	135	272	93.1	77.4	5.44	1.51
MAX	761	302	160	60	4,000	1,400	273	1,110	200	220	17	6.2
MIN	102	123	55	25	22	250	77	72	47	11	2.0	.72
CFSM	.89	.61	.37	.13	2.24	1.94	.49	.99	.34	.28	.02	.006
IN.	1.03	.68	.43	.15	2.34	2.24	.55	1.13	.38	.32	.02	.006
AC-FT	15,160	10,050	6,300	2,180	34,390	32,940	8,030	16,700	5,540	4,760	335	90

CAL YR 1970 TOTAL 57,582.40 MEAN 158 MAX 5,570 MIN 3.7 CFSM .57 IN 7.76 AC-FT 114,200
WTR YR 1971 TOTAL 68,800.87 MEAN 188 MAX 4,000 MIN .72 CFSM .68 IN 9.27 AC-FT 136,500

PEAK DISCHARGE (BASE, 1,500 CFS).--Feb. 20 (time unknown) about 4,300 cfs.

05471500 SOUTH SKUNK RIVER NEAR OSKALOOSA, IOWA

LOCATION.--Lat 41°21'19", long 92°39'31", in NW1/4 SW1/4 sec.25, T.76 N., R.16 W., Mahaska County, on right bank 400 ft upstream from bridge on U.S. Highway 63, 0.3 mile downstream from Painter Creek, 4.0 miles north of Oskaloosa, 53.7 miles upstream from confluence with North Skunk River, and at mile 147.3 upstream from mouth of Skunk River.
DRAINAGE AREA.--1,635 sq mi.
PERIOD OF RECORD.--October 1945 to current year. Prior to October 1966, published as Skunk River near Oskaloosa. Prior to October 1948, monthly discharge only, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 685.50 ft above mean sea level. Prior to Nov. 21, 1947, nonrecording gage at site 400 ft downstream at same datum.
AVERAGE DISCHARGE.--26 years, 772 cfs (6.41 inches per year, 559,300 acre-ft per year); median of yearly mean discharges, 640 cfs (5.3 inches per year, 464,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 6,700 cfs Feb. 27 (gage height, 20.34 ft, backwater from ice); minimum daily, 47 cfs Sept. 24, 30.
Period of record: Maximum discharge, 20,000 cfs June 15, 1947 (gage height, 21.26 ft, from floodmarks); minimum daily, 1.8 cfs Oct. 11-13, 1956.
Flood in May 1944 reached a stage of 25.8 ft, from floodmarks (discharge, 37,000 cfs, from rating curve extended above 18,000 cfs on basis of velocity-area study).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Apr. 8 to May 18; stage-discharge relation affected by ice Nov. 23-29, Dec. 6-9, 13-16, Dec. 20 to Mar. 3).

5.4	44	9.0	1,100
5.8	89	12.0	2,500
6.3	182	15.0	4,600
7.0	390	18.0	7,500

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	609	997	804	340	200	5,200	1,260	612	751	424	174	66
2	563	931	779	320	195	4,700	1,230	600	711	474	167	66
3	517	896	753	300	190	4,500	1,140	572	671	551	175	64
4	475	864	719	270	185	3,950	1,050	554	630	502	174	69
5	444	832	701	250	180	3,190	986	551	604	495	151	104
6	426	805	550	230	170	2,440	944	546	592	531	141	125
7	414	785	450	200	160	1,810	908	551	584	616	134	86
8	658	764	500	220	150	1,420	892	562	577	966	128	70
9	3,980	863	650	240	160	1,270	875	541	569	912	122	66
10	2,400	933	707	250	170	1,270	845	507	562	1,480	115	63
11	2,370	915	721	250	180	1,590	812	492	555	1,300	108	61
12	1,890	915	674	250	190	2,690	804	478	548	824	103	59
13	1,580	892	620	250	200	3,700	794	458	541	826	102	56
14	1,370	855	580	250	210	4,200	761	444	534	680	100	54
15	1,210	809	540	250	220	5,000	735	428	526	587	95	54
16	1,070	785	580	240	240	4,260	722	411	516	492	91	52
17	988	785	723	240	300	3,320	777	393	506	435	89	50
18	932	775	738	240	1,800	2,630	732	402	496	385	87	52
19	884	758	716	240	4,000	2,520	699	1,160	493	347	86	54
20	844	824	600	240	4,300	2,650	677	2,000	483	310	87	54
21	819	929	450	230	4,400	2,300	672	1,550	472	286	87	53
22	1,320	1,140	480	240	4,400	2,250	671	1,230	462	267	85	51
23	1,430	1,000	470	250	4,700	2,170	644	1,060	455	292	84	49
24	1,140	700	460	260	5,000	1,830	621	1,580	448	379	80	47
25	1,040	650	450	250	5,600	1,540	602	1,680	441	261	78	50
26	968	800	450	240	6,600	1,400	580	1,590	431	250	74	53
27	950	900	450	230	6,200	1,300	653	1,180	422	222	72	55
28	1,020	870	430	220	5,400	1,250	699	1,010	409	206	69	51
29	1,200	850	410	215	------	1,310	676	916	395	199	69	49
30	1,210	825	390	210	------	1,350	638	845	406	194	68	47
31	1,090	------	370	205	------	1,280	------	790	------	182	66	------
TOTAL	35,811	25,647	17,915	7,620	55,700	80,290	24,099	25,693	15,790	15,875	3,261	1,830
MEAN	1,155	855	578	246	1,989	2,590	803	829	526	512	105	61.0
MAX	3,980	1,140	804	340	6,600	5,200	1,260	2,000	751	1,480	175	125
MIN	414	650	370	200	150	1,250	580	393	395	182	66	47
CFSM	.71	.52	.35	.15	1.22	1.58	.49	.51	.32	.31	.06	.04
IN.	.81	.58	.41	.17	1.27	1.83	.55	.58	.36	.36	.07	.04
AC-FT	71,030	50,870	35,530	15,110	110,500	159,300	47,800	50,960	31,320	31,490	6,470	3,630

CAL YR 1970 TOTAL 286,551 MEAN 785 MAX 7,780 MIN 90 CFSM .48 IN 6.52 AC-FT 568,400
WTR YR 1971 TOTAL 309,531 MEAN 848 MAX 6,600 MIN 47 CFSM .52 IN 7.04 AC-FT 614,000

PEAK DISCHARGE (BASE, 5,000 CFS).--Feb. 27 (time unknown) about 6,700 cfs.

05472000 LAKE KEOMAH NEAR OSKALOOSA, IOWA

LOCATION.--Lat 41°17'07", long 92°32'23", in NE1/4 SW1/4 sec.24, T.75 N., R.15 W., Mahaska County, on downstream side of bridge, 0.7 mile south of dam on unnamed creek in Lake Keomah State Park, 5.7 miles east of Post Office at Oskaloosa.
DRAINAGE AREA.--3.06 sq mi.
PERIOD OF RECORD.--June 1936 to September 1971 (discontinued).
GAGE.--Nonrecording gage. Datum of gage is 743.2 ft (State Conservation Commission datum).
EXTREMES.--Current year: Maximum gage height observed, 6.69 ft Oct. 9; minimum observed, 5.30 ft Sept. 22.
Period of record: Maximum gage height observed, 8.85 ft July 2, 1965; minimum observed, 2.24 ft Oct. 7, 8, 1967, but has been lower in January of 1961 or September 1965 while lake was drained.
REMARKS.--Lake is formed by earthfill dam with ungated concrete spillway at elevation 749.3 ft (State Conservation Commission datum). Releases for fish rearing ponds below lake outlet controlled by flume gate. Lake is used for conservation and recreation.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						6.43	6.30					5.50
2		6.31					6.28	6.21		5.88	5.88	5.47
3	6.28						6.26	6.21			5.98	5.46
4	6.28						6.24	6.20		5.86		5.47
5	6.24						6.22	6.20		5.93		
6	6.25						6.21			5.90	5.95	
7	6.25		6.23				6.20	6.25	6.15	5.91		
8	6.32							6.30	6.13	5.94		5.48
9	6.69							6.28	6.10	5.98	5.90	5.48
10	6.45							6.27			5.89	5.47
11											5.85	
12							6.21		6.05			5.43
13							6.21		6.10		5.83	
14							6.21	6.23				
15							6.20	6.24	6.11		5.79	5.33
16							6.20				5.78	5.32
17							6.22				5.76	
18	6.32						6.22	6.17			5.73	
19	6.30						6.22	6.26	6.11		5.71	
20	6.30						6.22		6.09		5.71	5.32
21	6.30			6.29		6.30	6.23				5.70	
22	6.36					6.30	6.22				5.69	5.30
23	6.37					6.30				6.00	5.66	
24	6.37					6.30	6.19	6.25		6.03		
25	6.36					6.30	6.18				5.65	
26	6.36					6.30	6.17			6.01		
27	6.37					6.30	6.28			6.01	5.59	
28	6.38						6.23	6.25			5.56	
29	6.36				------		6.22	6.25		5.94	5.55	
30	6.35				------				5.91	5.94	5.53	
31	6.31	------			------		------	6.21	------		5.52	------

05472500 NORTH SKUNK RIVER NEAR SIGOURNEY, IOWA

LOCATION.--Lat 41°18'03", long 92°12'16", in NE1/4 SE1/4 sec.14, T.75 N., R.12 W., Keokuk County, on right bank 20 ft downstream from bridge on State Highway 149, 1.2 miles downstream from Cedar Creek, 2.2 miles south of Sigourney, 4.0 miles upstream from Bridge Creek, and 16.2 miles upstream from confluence with South Skunk River.
DRAINAGE AREA.--730 sq mi.
PERIOD OF RECORD.--October 1945 to current year.
GAGE.--Water-stage recorder. Datum of gage is 651.53 ft above mean sea level. Prior to June 10, 1953, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--26 years, 394 cfs (7.33 inches per year, 285,500 acre-ft per year); median of yearly mean discharges, 380 cfs (7.1 inches per year, 275,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,720 cfs Oct. 13 (gage height, 18.32 ft); maximum gage height, 20.07 ft Feb. 23 (backwater from ice); minimum daily discharge, 12 cfs Sept. 28.
Period of record: Maximum discharge, 27,500 cfs Mar. 31, 1960 (gage height, 25.33 ft); minimum daily, 0.1 cfs Oct. 7 to Nov. 15, 1956.
Flood in May 1944 reached a stage of 22.8 ft, from floodmark (discharge, 14,500 cfs).
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1558: 1946-47 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Apr. 1 to May 18, May 22-24, May 28 to June 14, June 18 to July 10, July 15 to Aug. 5, Sept. 23-30; stage-discharge relation affected by ice Nov. 24, 25, Dec. 6-8, 13-16, Dec. 20 to Mar. 3).

3.3	12	7.0	546
3.6	33	10.0	1,270
4.0	69	15.0	2,870
5.0	192	18.0	4,460

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	570	743	411	260	150	1,800	322	213	208	81	65	19
2	510	682	403	250	150	2,000	320	198	205	110	59	18
3	456	642	375	230	140	1,800	301	189	189	112	91	17
4	404	610	345	210	130	1,050	267	177	172	96	66	21
5	365	577	327	190	130	714	251	172	156	103	58	38
6	367	551	260	170	120	684	244	172	144	104	53	30
7	350	525	210	150	120	588	236	176	136	120	49	46
8	329	494	220	160	110	421	230	193	133	106	47	44
9	2,610	494	311	180	120	376	227	208	133	99	43	32
10	3,080	735	349	200	120	372	217	211	133	271	49	45
11	2,800	952	513	210	120	383	209	182	129	1,090	42	49
12	4,210	703	492	210	130	612	208	166	123	1,350	41	30
13	4,410	623	450	210	130	981	226	161	399	539	38	23
14	2,760	587	350	210	140	1,160	224	155	376	316	36	18
15	1,130	553	300	200	140	1,500	204	145	599	257	35	16
16	898	511	350	190	160	1,370	190	137	310	208	33	16
17	790	491	607	190	300	721	194	129	226	182	32	16
18	726	483	680	180	1,800	538	235	127	187	158	30	16
19	674	467	664	180	3,000	532	271	936	189	137	29	18
20	631	537	500	180	3,200	592	229	661	160	122	28	16
21	596	590	350	190	3,000	509	215	403	148	113	27	15
22	602	570	400	200	3,500	508	203	274	122	104	27	15
23	1,330	480	480	210	4,000	481	193	229	112	97	28	15
24	1,670	300	350	220	3,500	391	179	225	106	113	26	15
25	1,150	290	330	190	3,000	341	167	589	100	130	25	14
26	966	450	320	180	2,500	337	157	581	94	139	23	14
27	1,020	448	310	170	2,000	324	172	373	90	139	21	13
28	1,220	428	300	170	1,500	318	266	285	86	122	21	12
29	1,150	414	290	160	------	322	307	250	83	103	20	13
30	941	411	280	160	------	358	255	227	81	88	19	15
31	827	------	270	150	------	326	------	214	------	75	19	------
TOTAL	39,542	16,341	11,797	5,960	33,410	22,409	6,919	8,358	5,329	6,784	1,180	669
MEAN	1,276	545	381	192	1,193	723	231	270	178	219	38.1	22.3
MAX	4,410	952	680	260	4,000	2,000	322	936	599	1,350	91	49
MIN	329	290	210	150	110	318	157	127	81	75	19	12
CFSM	1.75	.75	.52	.26	1.63	.99	.32	.37	.24	.30	.05	.03
IN.	2.02	.83	.60	.30	1.70	1.14	.35	.43	.27	.35	.06	.03
AC-FT	78,430	32,410	23,400	11,820	66,270	44,450	13,720	16,580	10,570	13,460	2,340	1,330

CAL YR 1970 TOTAL 225,474 MEAN 618 MAX 7,450 MIN 35 CFSM .85 IN 11.49 AC-FT 447,200
WTR YR 1971 TOTAL 158,698 MEAN 435 MAX 4,410 MIN 12 CFSM .60 IN 8.09 AC-FT 314,800

PEAK DISCHARGE (BASE, 3,800 CFS).--Oct. 13 (0015) 4,720 cfs (18.32 ft); Feb. 23 (time unknown) about 4,100 cfs.

05473500 BIG CREEK NEAR MOUNT PLEASANT, IOWA

LOCATION.--Lat 41°00'52", long 91°34'49", in NW1/4 NW1/4 sec.29, T.72 N., R.6 W., Henry County, on left bank 12 ft downstream from bridge on county highway, 100 ft downstream from Lynn Creek, 0.7 mile downstream from Brandywine Creek, and 3.7 miles northwest of Court House at Mount Pleasant.
DRAINAGE AREA.--106 sq mi.
PERIOD OF RECORD.--October 1955 to current year.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 630.53 ft above mean sea level.
AVERAGE DISCHARGE.--16 years, 59.3 cfs (7.60 inches per year, 42,960 acre-ft per year); median of yearly mean discharges, 41 cfs (5.3 inches per year, 29,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,000 cfs Feb. 18 (gage height, 13.04 ft, backwater from ice); no flow Aug. 31 to Sept. 3.
Period of record: Maximum discharge, 6,150 cfs Sept. 21, 1965 (gage height, 18.22 ft in gage well, 18.51 ft, from outside floodmark), from rating curve extended above 4,100 cfs on basis of contracted-opening measurement of peak flow; no flow at times most years.
Flood of Aug. 3, 1948, reached a stage of about 27 ft, from floodmarks established by local residents (discharge not determined).
REMARKS.--Records good except those for winter period, which are poor.
REVISIONS (WATER YEARS).--WSP 1628: 1958 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Dec. 24 to Mar. 9).

1.87	0	2.2	7.3	3.5	162
1.9	.01	2.3	12	5.0	440
2.0	.53	2.5	28	7.0	900
2.1	3.5	2.8	65	10.0	1,800

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	41	27	25	13	40	29	21	17	1.8	1.4	0
2	98	39	25	23	12	35	24	20	23	1.5	.98	0
3	78	37	23	21	12	30	22	18	17	1.2	40	0
4	64	34	23	19	11	30	21	17	14	3.7	37	.02
5	61	32	21	18	11	29	19	19	12	5.0	8.3	9.0
6	56	32	17	17	10	26	19	25	12	2.2	4.0	11
7	52	31	19	16	9.0	19	19	19	14	2.0	2.3	4.9
8	49	28	21	18	10	17	19	18	14	1.9	1.4	1.6
9	60	33	22	19	11	20	19	17	11	5.8	2.1	3.7
10	50	39	39	20	12	23	17	16	10	38	1.9	32
11	43	36	336	19	13	59	16	16	55	27	.86	6.6
12	41	35	198	18	14	74	17	18	55	9.7	.43	1.9
13	40	33	122	17	15	53	20	15	80	6.4	.29	.57
14	36	30	84	17	17	65	17	14	168	4.2	.34	.24
15	32	27	66	15	22	147	16	12	35	3.1	.60	.26
16	29	27	75	15	70	108	17	11	20	2.3	.70	.36
17	29	28	81	15	500	67	17	11	15	1.6	.45	.41
18	28	27	90	14	1,500	63	16	14	52	1.8	.27	.40
19	27	30	108	14	1,600	81	16	17	16	2.8	.23	1.3
20	26	76	77	15	600	70	16	14	12	1.1	.17	1.4
21	28	54	67	17	120	62	16	12	9.5	.73	.11	.86
22	27	44	61	18	96	53	15	11	8.4	.54	.07	.56
23	35	34	52	18	83	42	13	29	11	56	.03	.45
24	40	34	45	18	50	38	14	39	6.8	69	.03	.36
25	34	33	40	18	60	36	14	37	6.0	15	.13	2.1
26	31	34	35	16	150	32	13	24	5.2	37	.17	4.5
27	46	30	31	14	80	32	50	17	4.3	15	.15	3.7
28	117	26	30	14	50	33	44	15	3.4	7.3	.11	2.1
29	81	26	29	16	------	29	30	15	2.7	4.6	.03	.89
30	61	26	28	15	------	27	24	14	2.1	3.4	.01	.66
31	49	------	27	13	------	29	------	14	------	2.6	0	------
TOTAL	1,559	1,036	1,919	532	5,151.0	1,469	609	559	711.4	334.27	104.56	91.84
MEAN	50.3	34.5	61.9	17.2	184	47.4	20.3	18.0	23.7	10.8	3.37	3.06
MAX	117	76	336	25	1,600	147	50	39	168	69	40	32
MIN	26	26	17	13	9.0	17	13	11	2.1	.54	0	0
CFSM	.47	.33	.58	.16	1.74	.45	.19	.17	.22	.10	.03	.03
IN.	.55	.36	.67	.19	1.81	.52	.21	.20	.25	.12	.04	.03
AC-FT	3,090	2,050	3,810	1,060	10,220	2,910	1,210	1,110	1,410	663	207	182

CAL YR 1970 TOTAL 36,239.40 MEAN 99.3 MAX 3,870 MIN 1.2 CFSM .94 IN 12.72 AC-FT 71,880
WTR YR 1971 TOTAL 14,076.07 MEAN 38.6 MAX 1,600 MIN 0 CFSM .36 IN 4.94 AC-FT 27,920

PEAK DISCHARGE (BASE, 900 CFS).--Feb. 18 (time unknown) about 2,000 cfs.

05474000 SKUNK RIVER AT AUGUSTA, IOWA

LOCATION.--Lat 40°45'13", long 91°16'40", in NE1/4 NE1/4 sec.26, T.69 N., R.4 W., Des Moines County, on left bank 300 ft upstream from bridge on State Highway 394 at Augusta, 2.0 miles upstream from Long Creek, and at mile 12.5.
DRAINAGE AREA.--4,303 sq mi.
PERIOD OF RECORD.--September to November 1913, October 1914 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 521.24 ft above mean sea level. Prior to Nov. 15, 1913, nonrecording gage at site 400 ft upstream at datum about 0.7 ft higher. May 27, 1915, to Jan. 14, 1935, nonrecording gage at site 400 ft upstream at present datum.
AVERAGE DISCHARGE.--57 years (1914-71), 2,224 cfs (7.02 inches per year, 1,611,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 15,200 cfs Feb. 28 (gage height, 15.02 ft, backwater from ice); maximum gage height, 18.16 ft Feb. 19 (backwater from ice); minimum daily discharge, 107 cfs Sept. 18.
Period of record: Maximum discharge, 51,000 cfs Apr. 3, 1960 (gage height, 25.00 ft); minimum daily, 7 cfs Aug. 27 to Sept. 1, 1934.
Flood of June 1, 1903, reached a stage of about 21 ft (discharge, about 45,000 cfs).
REVISIONS.--The maximum discharge for the water year 1966 has been revised to 19,100 cfs June 18, 1966 (gage height, 16.37 ft), superseding figure published in WRD Iowa, 1966.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1308: 1915 (M), 1919-27 (M), 1932-34 (M), 1936, 1937-38 (M), 1942 (M).
WSP 1438: Drainage area, WRD Iowa 1971; 1966 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used May 17 to June 12; stage-discharge relation affected by ice Nov. 23-26, Dec. 24 to Mar. 1).

1.5	109	4.0	2,250
1.7	191	8.0	7,100
2.0	385	14.0	15,100
2.5	800		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,360	3,330	2,080	1,400	510	14,000	2,390	1,590	1,600	498	461	121
2	2,900	3,020	1,950	1,400	500	12,500	2,320	1,370	1,960	473	423	119
3	2,530	2,750	1,820	1,400	490	11,300	2,210	1,210	1,820	460	555	115
4	2,230	2,560	1,690	1,300	470	10,500	2,160	1,140	1,550	528	840	113
5	2,010	2,390	1,600	1,200	450	10,100	2,070	1,120	1,300	719	790	316
6	1,840	2,260	1,520	1,100	420	9,680	1,930	1,140	1,200	879	776	566
7	1,710	2,170	1,400	1,000	390	8,230	1,820	1,230	1,120	835	489	380
8	1,670	2,070	1,350	800	370	6,820	1,760	1,320	1,120	781	409	259
9	1,900	2,040	1,280	900	350	5,770	1,730	1,260	1,020	803	551	223
10	5,180	2,050	1,280	950	360	4,070	1,680	1,240	975	1,070	387	501
11	9,210	2,310	6,950	980	370	3,370	1,630	1,190	961	2,380	311	653
12	9,400	2,570	9,590	1,000	390	4,870	1,570	1,150	1,090	4,460	226	333
13	7,670	2,620	6,410	1,000	400	5,230	1,520	1,080	1,560	4,040	164	210
14	7,360	2,360	3,630	960	420	5,210	1,490	1,020	1,880	2,700	230	179
15	7,310	2,210	2,780	930	450	6,420	1,450	983	1,610	1,860	229	151
16	6,540	2,100	2,440	880	550	6,820	1,410	948	1,610	1,470	213	126
17	4,030	1,990	2,920	820	1,500	6,670	1,360	915	1,730	1,170	205	112
18	3,180	1,900	3,770	770	6,000	6,520	1,330	901	1,270	998	193	107
19	2,830	1,880	4,170	730	8,000	6,600	1,340	887	1,250	916	190	115
20	2,590	2,260	3,810	700	9,000	6,670	1,460	1,030	1,140	1,170	187	118
21	2,400	2,480	2,990	670	10,000	5,980	1,540	2,780	1,100	903	178	131
22	2,250	2,500	2,440	640	10,500	5,110	1,560	2,660	923	720	174	125
23	2,290	2,100	2,080	620	11,000	4,410	1,600	2,570	985	643	169	121
24	2,750	1,900	1,700	600	12,000	3,930	1,680	2,330	1,100	898	166	111
25	4,470	1,800	1,600	580	12,500	3,680	1,720	2,060	1,060	1,080	163	122
26	4,140	1,700	1,600	570	13,000	3,330	1,750	2,170	940	1,420	182	129
27	3,420	1,550	1,500	560	14,000	2,960	1,770	2,880	709	1,060	157	146
28	3,520	1,740	1,500	550	15,000	2,730	2,010	2,760	617	1,180	144	130
29	4,240	2,000	1,500	540	------	2,540	1,840	2,210	568	852	138	123
30	4,050	1,980	1,500	530	------	2,360	1,750	1,840	531	633	134	112
31	3,640	------	1,500	520	------	2,310	------	1,640	------	538	127	------
TOTAL	122,620	66,590	82,270	26,600	129,390	190,690	51,850	48,624	36,299	38,137	9,561	6,067
MEAN	3,955	2,220	2,654	858	4,621	6,151	1,728	1,569	1,210	1,230	308	202
MAX	9,400	3,330	9,590	1,400	15,000	14,000	2,390	2,880	1,960	4,460	840	653
MIN	1,670	1,550	1,280	520	350	2,310	1,330	887	531	460	127	107
CFSM	.92	.52	.62	.20	1.07	1.43	.40	.36	.28	.29	.07	.05
IN.	1.06	.58	.71	.23	1.12	1.65	.45	.42	.31	.33	.08	.05
AC-FT	243,200	132,100	163,200	52,760	256,600	378,200	102,800	96,450	72,000	75,640	18,960	12,030

CAL YR 1970 TOTAL 1,183,788 MEAN 3,243 MAX 24,100 MIN 231 CFSM .75 IN 10.23 AC-FT 2,348,000
WTR YR 1971 TOTAL 808,698 MEAN 2,216 MAX 15,000 MIN 107 CFSM .52 IN 6.99 AC-FT 1,604,000

PEAK DISCHARGE (BASE, 15,000 CFS).--Feb. 28 (time unknown) about 15,200 cfs.

05474500 MISSISSIPPI RIVER AT KEOKUK, IOWA

LOCATION.--Lat 40°23'37", long 91°22'27", in SE1/4 SW1/4 sec.30, T.65 N., R.4 W., Lee County, near right bank in tailwater of dam and powerplant of Union Electric Co. at Keokuk, 0.2 mile upstream from bridge on U.S. Highway 136, 2.7 miles upstream from Des Moines River, and at mile 364.2 upstream from Ohio River.
DRAINAGE AREA.--119,000 sq mi, approximately.
PERIOD OF RECORD.--January 1878 to current year.
GAGE.--Water-stage recorder. Datum of gage is 477.41 ft (corrected) above mean sea level (levels by Corps of Engineers); 477.83 ft above mean sea level, adjustment of 1912; 477.34 ft above mean gulf level; and 484.65 ft above Memphis datum. Jan. 1, 1878 to May 1913, nonrecording gage at Galland (formerly Nashville), 8 miles upstream; zero of gage was set to low-water mark of 1864, or 496.94 ft above mean sea level, adjustment of 1912.
AVERAGE DISCHARGE.--93 years, 61,330 cfs (7.00 inches per year, 44,430,000 acre-ft per year).
EXTREMES.--Current year: Maximum daily discharge, 185,000 cfs April 27; minimum daily, 17,400 cfs Sept. 24.
Period of record: Maximum daily discharge, 327,000 cfs May 1, 1965; maximum gage height, 22.14 ft May 1, 1965; minimum daily discharge, 5,000 cfs Dec. 27, 1933.
Flood of June 6, 1851, reached a stage of 21.0 ft, present site and datum, estimated as 13.5 ft at Galland (discharge, 360,000 cfs).
REMARKS.--Discharge computed from records of operation of turbines in powerplant and spillway gates in dam. Flow regulated by powerplant above station since 1913, and reservoirs and navigation dams above station since about 1935. Records for May 1913 to September 1937 adjusted for change in contents in Keokuk Reservoir, those after September 1937 unadjusted.
COOPERATION.--Records furnished by Union Electric Co., formerly Mississippi River Power Co.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60,100	69,000	67,300	45,000	37,600	158,000	123,000	161,000	86,900	58,400	36,600	18,200
2	55,400	76,300	71,300	46,200	36,300	158,000	122,000	154,000	94,200	56,100	34,000	19,700
3	45,000	77,000	72,800	47,100	35,700	151,000	128,000	141,000	103,000	55,200	33,600	19,400
4	38,500	82,600	74,500	41,500	36,200	127,000	136,000	126,000	108,000	53,900	33,300	20,200
5	39,600	85,800	76,800	42,800	38,100	108,000	142,000	120,000	106,000	53,700	32,000	31,900
6	37,900	85,700	78,200	41,200	37,200	97,400	147,000	115,000	103,000	48,800	32,300	41,800
7	37,000	86,600	74,000	41,900	36,100	89,900	147,000	105,000	99,800	46,800	32,100	39,500
8	37,600	84,400	59,300	43,900	36,100	90,700	149,000	99,400	98,700	47,700	32,400	29,500
9	37,900	85,000	49,100	45,700	35,200	87,600	158,000	95,600	94,000	52,200	28,800	32,500
10	46,400	84,900	44,400	44,900	34,000	82,500	157,000	96,400	83,300	55,100	21,700	34,400
11	54,000	84,800	56,700	44,500	34,000	78,400	156,000	96,700	76,500	67,800	22,500	28,900
12	65,200	90,200	65,500	41,700	34,800	81,200	155,000	96,400	82,900	74,400	25,300	29,100
13	81,700	91,200	65,700	37,600	35,000	81,700	153,000	93,700	84,500	81,500	25,100	32,000
14	79,600	90,500	55,500	36,100	35,000	79,100	151,000	91,400	84,600	74,600	25,500	31,300
15	71,900	88,500	53,800	36,600	35,400	86,900	148,000	87,200	81,200	77,700	30,100	30,000
16	70,300	88,800	52,400	39,600	36,900	109,000	147,000	79,000	75,900	73,600	34,400	24,000
17	60,900	87,500	57,000	38,600	39,000	124,000	147,000	73,700	76,100	69,200	28,300	23,100
18	55,500	86,000	59,300	38,600	48,000	127,000	148,000	67,900	73,600	57,000	27,200	24,100
19	53,200	85,600	62,300	38,400	70,100	127,000	153,000	60,200	69,600	59,500	26,500	23,700
20	54,100	88,600	65,800	37,900	92,300	120,000	155,000	58,800	67,800	55,100	31,500	25,400
21	53,900	90,300	61,300	38,400	112,000	123,000	164,000	71,400	72,700	54,800	32,200	25,300
22	51,200	94,600	55,800	38,300	120,000	131,000	169,000	79,200	74,300	53,200	32,600	24,300
23	47,600	90,600	53,700	37,400	133,000	134,000	174,000	73,700	81,400	50,900	35,000	20,200
24	46,400	85,400	46,600	36,700	149,000	143,000	181,000	67,100	79,000	51,000	37,400	17,400
25	43,700	71,900	44,400	36,800	164,000	146,000	182,000	67,000	71,200	50,400	35,400	21,200
26	43,600	74,000	43,200	37,100	161,000	144,000	184,000	69,500	76,200	51,800	33,800	23,900
27	45,700	67,600	45,600	37,100	162,000	139,000	185,000	74,900	79,100	49,000	31,300	23,800
28	56,800	56,600	47,400	36,900	161,000	136,000	181,000	77,200	80,200	48,700	28,700	22,800
29	64,700	63,200	49,700	37,500	------	133,000	177,000	76,800	69,000	43,700	27,500	25,700
30	67,100	67,400	47,400	37,400	------	126,000	168,000	80,200	63,800	38,500	24,900	29,200
31	71,400	------	47,300	37,400	------	123,000	------	81,100	------	38,200	22,600	------
TOTAL	1,673.9M	2,460.6M	1,804.1M	1,240.8M	1,985.0M	3,642.4M	4,687.0M	2,836.5M	2,496.5M	1,748.5M	934,600	792,500
MEAN	54,000	82,020	58,200	40,030	70,890	117,500	156,200	91,500	83,220	56,400	30,150	26,420
MAX	81,700	94,600	78,200	47,100	164,000	158,000	185,000	161,000	108,000	81,500	37,400	41,800
MIN	37,000	56,600	43,200	36,100	34,000	78,400	122,000	58,800	63,800	38,200	21,700	17,400
CFSM	.45	.69	.49	.34	.60	.99	1.31	.77	.70	.47	.25	.22
IN.	.52	.77	.56	.39	.62	1.14	1.47	.89	.78	.55	.29	.25
AC-FT	3,320M	4,881M	3,578M	2,461M	3,937M	7,225M	9,297M	5,626M	4,952M	3,468M	1,854M	1,572M

CAL YR 1970 TOTAL 22,683,500 MEAN 62,150 MAX 140,000 MIN 19,000 CFSM .52 IN 7.09 AC-FT 44,990,000
WTR YR 1971 TOTAL 26,302,400 MEAN 72,060 MAX 185,000 MIN 17,400 CFSM .61 IN 8.22 AC-FT 52,170,000

M Expressed in thousands

05476500 DES MOINES RIVER AT ESTHERVILLE, IOWA

(Formerly published as West Fork Des Moines River at Estherville)

LOCATION.--Lat 43°23'51", long 94°50'38", in SW1/4SE1/4 sec.10, T.99 N., R.34 W., Emmet County, on right bank in city park, 1,200 ft downstream from bridge on State Highway 9 at Estherville, 0.1 mile upstream from School Creek, 2.3 miles upstream from Brown Creek, and at mile 404.2 upstream from mouth of Des Moines River.
DRAINAGE AREA.--1,372 sq mi.
PERIOD OF RECORD.--October 1951 to current year. Prior to November 1951, monthly discharge only, published in WSP 1728.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,247.55 ft above mean sea level.
AVERAGE DISCHARGE.--20 years, 307 cfs (3.04 inches per year, 222,400 acre-ft per year); median of yearly mean discharges, 220 cfs (2.2 inches per year, 159,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 3,780 cfs Apr. 1 (gage height, 10.54 ft); minimum daily, 11 cfs Sept. 30.
Period of record: Maximum discharge, 16,000 cfs Apr. 12, 1969 (gage height, 17.68 ft, from floodmark); minimum daily, 0.2 cfs Sept. 21, 22, 28, Oct. 19, 1958.
REMARKS.--Records good except those for winter periods, which are fair. Diurnal fluctuation at low flow caused by powerplant 0.3 mile above station which discharges an average daily flow of about 0.5 cfs into river from subterranean wells. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS.-- WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23, Dec. 5-7, Jan. 5 to Feb. 16, Feb. 19 to Mar. 25).

1.7	11	2.2	64	6.0	1,440
1.8	18	2.5	120	9.0	2,810
2.0	38	3.0	250	11.0	4,100

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	183	414	209	64	305	3,540	523	941	895	223	45
2	39	189	426	203	60	296	2,950	503	545	948	212	41
3	39	204	457	198	59	296	2,440	462	445	918	199	42
4	36	236	432	192	57	280	2,080	443	430	978	183	46
5	33	285	280	152	54	278	1,950	437	451	994	170	45
6	29	314	238	108	49	270	1,900	413	471	938	158	41
7	51	312	338	96	46	258	1,770	382	652	898	149	39
8	104	314	361	100	43	250	1,620	366	731	863	141	36
9	216	456	415	104	44	240	1,510	352	751	817	133	35
10	306	634	340	106	43	238	1,400	337	802	773	127	34
11	288	697	254	112	42	248	1,270	327	838	747	105	32
12	296	694	279	114	42	350	1,190	307	885	753	88	29
13	292	688	241	112	42	800	1,100	291	910	764	82	27
14	278	684	300	110	42	1,700	1,030	281	902	767	71	26
15	255	665	329	108	42	1,700	964	270	865	746	56	24
16	237	622	336	106	43	1,600	916	260	819	711	45	22
17	226	614	329	104	45	1,560	869	238	769	669	41	22
18	210	591	321	102	97	1,320	818	230	746	633	42	20
19	198	572	307	98	540	1,180	777	246	741	593	51	19
20	187	556	292	94	500	1,160	759	242	916	561	51	18
21	177	585	236	92	390	1,110	747	236	862	518	50	19
22	170	547	279	90	315	1,070	711	227	834	483	50	22
23	168	164	287	90	290	1,020	683	227	785	448	49	18
24	163	186	264	89	290	980	656	259	751	411	48	15
25	162	278	248	88	280	950	625	279	736	379	62	24
26	164	409	242	81	320	959	592	306	692	352	86	19
27	178	399	240	76	360	981	592	301	656	327	63	15
28	183	384	229	76	320	1,240	576	292	622	302	48	13
29	177	382	221	71	------	1,760	571	282	595	281	44	12
30	178	373	217	68	------	2,390	547	264	660	258	41	11
31	181	------	218	66	------	3,070	------	347	------	235	43	------
TOTAL	5,257	13,217	9,370	3,415	4,519	29,859	37,153	9,930	21,803	19,960	2,911	811
MEAN	170	441	302	110	161	963	1,238	320	727	644	93.9	27.0
MAX	306	697	457	209	540	3,070	3,540	523	941	994	223	46
MIN	29	164	217	66	42	238	547	227	430	235	41	11
CFSM	.12	.32	.22	.08	.12	.70	.90	.23	.53	.47	.07	.02
IN.	.14	.36	.25	.09	.12	.81	1.01	.27	.59	.54	.08	.02
AC-FT	10,430	26,220	18,590	6,770	8,960	59,230	73,690	19,700	43,250	39,590	5,770	1,610

CAL YR 1970 TOTAL 100,863 MEAN 276 MAX 1,400 MIN 21 CFSM .20 IN 2.73 AC-FT 200,100
WTR YR 1971 TOTAL 158,205 MEAN 433 MAX 3,540 MIN 11 CFSM .32 IN 4.29 AC-FT 313,800

PEAK DISCHARGE (BASE, 1,500 CFS).--Mar. 14 (2030) about 2,100 cfs (9.37 ft); Apr. 1 (1345) 3,780 cfs (10.54 ft).

05476750 DES MOINES RIVER AT HUMBOLDT, IOWA
(Formerly published as West Fork Des Moines River at Humboldt)

LOCATION.--Lat 42°43'12", long 94°13'06", in SE1/4 SW1/4 sec.1, T.91 N., R.29 W., Humboldt County, on left bank 5 ft downstream from First Avenue bridge in city of Humboldt, about 700 ft below dam, 3.2 miles upstream from Indian Creek, 3.9 miles upstream from East Fork Des Moines River, and at mile 334.3.
DRAINAGE AREA.--2,256 sq mi.
PERIOD OF RECORD.--October 1964 to current year. Prior to October 1970, published as West Fork Des Moines River at Humboldt.
GAGE.--Water-stage recorder. Datum of gage is 1,053.54 ft above mean sea level. Prior to Oct. 3, 1966, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--7 years, 827 cfs (4.98 inches per year, 599,200 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 5,520 cfs Mar. 21 (gage height, 8.75 ft); minimum daily, 79 cfs Feb. 14-16.
Period of record: Maximum discharge, 18,000 cfs Apr. 14, 1969 (gage height, 15.40 ft); minimum daily, 20 cfs Jan. 10-12, 1968.
Flood of June 23, 1947, reached a stage of 12.2 ft (discharge, 11,000 cfs) at present site and datum.
REMARKS.--Records good except those for winter periods, which are poor. Daily nonrecording gage readings available in district office for period Mar. 7, 1940, to Sept. 30, 1964. Discharge not published for this period because of extreme regulation of stream flow by Iowa Public Service Co. power dam 700 ft upstream from gage. Power generation and streamflow regulation discontinued August 1964. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--One discharge measurement furnished by Corps of Engineers.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used June 8 to July 15; stage-discharge relation affected by ice Nov. 23-25, Dec. 6 to Mar. 15).

2.8	80	5.0	1,330
3.1	158	7.0	3,270
3.5	315	9.0	5,900
4.0	600		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	311	723	286	112	930	4,580	921	721	1,510	442	143
2	102	311	706	282	110	900	4,600	881	1,030	1,400	420	147
3	98	312	659	278	106	850	4,660	844	1,190	1,430	361	145
4	93	330	584	270	104	790	4,780	811	930	1,810	347	134
5	100	360	444	230	102	740	4,820	774	1,390	2,800	343	127
6	105	403	350	196	96	690	4,470	752	1,530	3,240	329	115
7	121	447	320	180	91	650	3,730	735	2,040	2,950	311	115
8	178	474	330	176	87	630	3,310	691	3,340	2,370	306	115
9	297	514	340	182	84	610	3,100	660	4,260	1,980	289	113
10	421	551	340	194	83	590	2,850	636	4,020	1,780	267	112
11	549	750	330	198	80	640	2,620	620	3,500	1,740	284	110
12	561	890	320	200	81	800	2,440	592	2,960	1,570	352	109
13	551	927	305	198	81	1,080	2,220	573	2,510	1,410	320	94
14	509	933	320	196	79	1,560	2,060	553	2,400	1,320	255	103
15	475	926	345	196	79	2,800	1,900	522	2,160	1,250	259	99
16	447	913	355	190	79	3,760	1,810	505	1,950	1,190	219	97
17	416	900	360	190	82	3,810	1,710	491	1,760	1,110	196	95
18	390	856	370	180	130	3,990	1,590	508	1,600	1,030	175	95
19	376	842	365	170	1,300	4,220	1,520	513	1,520	944	189	93
20	347	829	360	168	1,600	4,600	1,430	600	1,450	874	189	93
21	331	799	355	174	1,760	5,300	1,390	674	1,420	814	185	93
22	344	765	345	180	1,900	4,660	1,390	642	1,450	756	182	98
23	318	410	340	180	1,980	3,880	1,330	631	1,370	815	177	94
24	306	350	330	180	1,800	3,300	1,240	858	1,270	934	169	83
25	300	330	325	180	1,560	3,100	1,160	907	1,150	796	161	92
26	296	367	320	170	1,320	2,850	1,090	825	1,140	705	152	98
27	299	477	315	156	1,180	2,670	1,060	750	1,070	664	143	96
28	291	548	310	148	1,040	3,130	1,010	705	974	644	145	96
29	295	636	300	138	------	4,160	981	669	970	600	154	93
30	307	663	295	126	------	4,590	943	639	1,300	561	152	90
31	311	------	290	118	------	4,630	------	624	------	529	146	------
TOTAL	9,665	18,124	11,751	5,910	17,106	76,910	71,794	21,106	54,375	41,526	7,619	3,187
MEAN	312	604	379	191	611	2,481	2,393	681	1,813	1,340	246	106
MAX	561	933	723	286	1,980	5,300	4,820	921	4,260	3,240	442	147
MIN	93	311	290	118	79	590	943	491	721	529	143	83
CFSM	.14	.27	.17	.08	.27	1.10	1.06	.30	.80	.59	.11	.05
IN.	.16	.30	.19	.10	.28	1.27	1.18	.35	.90	.68	.13	.05
AC-FT	19,170	35,950	23,310	11,720	33,930	152,600	142,400	41,860	107,900	82,370	15,110	6,320

CAL YR 1970 TOTAL 196,031 MEAN 537 MAX 3,920 MIN 87 CFSM .24 IN 3.23 AC-FT 388,800
WTR YR 1971 TOTAL 339,073 MEAN 929 MAX 5,300 MIN 79 CFSM .41 IN 5.59 AC-FT 672,600

PEAK DISCHARGE (BASE, 2,800 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
3-17	2000	8.20	4,770	6-9	1545	8.02	4,410
3-21	1545	8.75	5,520	7-5	2030	7.20	3,380
4-4	1645	8.25	4,840				

05478000 EAST FORK DES MOINES RIVER NEAR BURT, IOWA

LOCATION.--Lat 43°12'38", long 94°10'35", in NW1/4NE1/4 sec.20, T.97 N., R.28 W., Kossuth County, on right bank 30 ft downstream from bridge on county highway, 0.8 mile upstream from Buffalo Creek, 2.2 miles northeast of Burt, 4.7 miles downstream from Mud Creek, and at mile 389.7 upstream from mouth of Des Moines River.
DRAINAGE AREA.--462 sq mi.
PERIOD OF RECORD.--October 1951 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,114.42 ft above sea level.
AVERAGE DISCHARGE.--20 years, 139 cfs (4.09 inches per year, 100,700 acre-ft per year); median of yearly mean discharges, 120 cfs (3.5 inches per year, 86,900 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,740 cfs Mar. 31 (gage height, 11.31 ft); maximum gage height, 11.95 ft Mar. 17 (backwater from ice); minimum daily discharge, 0.32 cfs Sept. 19.
Period of record: Maximum discharge, 5,000 cfs Apr. 6, 1965 (gage height, 14.21 ft, backwater from ice); no flow Jan. 24 to Mar. 3, 1959.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1708: 1955.

Rating table (gage height, in feet and discharge, in cubic feet per second).
(Shifting-control method used Mar.31 to Apr. 14, Sept. 17-30).

Mar. 31 to Sept. 30

3.7	0.32	5.0	72	9.0	520
3.8	1.2	6.0	147	10.0	780
3.9	3.7	7.0	240	11.0	1,230
4.0	7.2	8.0	360	12.0	2,700
4.2	16				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	74	154	49	28	315	1,570	227	202	235	29	6.6
2	2.1	76	160	48	27	286	1,350	214	388	216	22	4.5
3	1.8	79	162	48	26	254	1,200	208	490	180	18	3.8
4	2.2	102	114	35	25	234	1,080	200	546	172	16	2.6
5	2.6	125	88	21	26	212	1,040	189	585	175	14	1.4
6	2.8	129	61	25	26	198	997	179	538	174	13	1.3
7	8.1	125	68	27	25	182	952	171	578	159	12	1.4
8	51	120	94	30	24	168	922	162	771	144	10	1.0
9	107	168	122	30	21	160	880	153	848	130	9.4	1.0
10	119	239	104	32	22	154	840	147	810	127	8.9	.89
11	118	269	96	33	23	160	813	137	774	121	8.0	.83
12	104	272	90	34	23	186	768	129	714	125	7.2	.68
13	91	259	82	36	23	268	726	132	630	118	6.5	.72
14	88	251	76	36	23	560	684	123	524	106	5.8	.64
15	88	239	78	35	23	1,120	618	113	481	101	5.5	.42
16	98	232	80	35	23	1,300	558	105	457	89	5.0	.39
17	95	215	84	35	25	1,370	497	106	407	83	4.7	.36
18	93	214	80	33	46	1,380	450	109	377	75	4.5	.34
19	89	214	69	33	85	1,420	420	112	353	66	5.9	.32
20	89	213	60	32	250	1,360	385	143	322	61	6.4	.34
21	88	211	70	32	460	1,280	364	164	294	58	5.2	.34
22	89	204	74	32	510	1,200	340	149	277	48	4.3	.43
23	93	88	68	33	520	1,180	318	144	257	59	3.6	.61
24	91	83	62	33	485	1,160	296	189	242	181	3.4	.92
25	92	152	63	34	455	1,060	277	290	239	122	2.8	1.0
26	90	150	60	34	420	980	256	242	246	84	2.6	.93
27	89	148	57	33	385	1,000	257	205	255	68	2.8	1.1
28	89	144	53	33	350	1,100	255	177	278	57	2.7	1.1
29	94	140	52	32	------	1,300	243	158	229	43	2.4	.72
30	87	150	50	30	------	1,530	240	145	210	36	2.3	.78
31	78	------	49	29	------	1,710	------	137	------	32	3.5	------
TOTAL	2,233.7	5,085	2,580	1,042	4,379	24,787	19,596	5,059	13,322	3,445	247.4	37.46
MEAN	72.1	170	83.2	33.6	156	800	653	163	444	111	7.98	1.25
MAX	119	272	162	49	520	1,710	1,570	290	848	235	29	6.6
MIN	1.8	74	49	21	21	154	240	105	202	32	2.3	.32
CFSM	.16	.37	.18	.07	.34	1.73	1.41	.35	.96	.24	.02	.003
IN.	.18	.41	.21	.08	.35	2.00	1.58	.41	1.07	.28	.02	.003
AC-FT	4,430	10,090	5,120	2,070	8,690	49,170	38,870	10,030	26,420	6,830	491	74

CAL YR 1970 TOTAL 35,561.30 MEAN 97.4 MAX 600 MIN 1.2 CFSM .21 IN 2.86 AC-FT 70,540
WTR YR 1971 TOTAL 81,813.56 MEAN 224 MAX 1,710 MIN .32 CFSM .48 IN 6.59 AC-FT 162,300

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-22	1030	10.69	540*	3-31	1500	11.31	1,740
3-17	1100	11.95	1,500*	6-9	0715	10.24	856

* about

05479000 EAST FORK DES MOINES RIVER AT DAKOTA CITY, IOWA

LOCATION.--Lat 42°43'26", long 94°11'30", in NW1/4 SE1/4 sec.6, T.91 N., R.28 W., Humboldt County, on right bank 50 ft upstream from old mill dam, in city park at east edge of Dakota City, 500 ft upstream from bridge on county highway P56, 0.6 mile downstream from bridge on State Highway 3, 3.4 miles upstream from confluence with Des Moines River, and at mile 333.8 upstream from mouth of Des Moines River.
DRAINAGE AREA.--1,308 sq mi.
PERIOD OF RECORD.--March 1940 to current year. Prior to October 1954, published as "near Hardy".
GAGE.--Water-stage recorder. Datum of gage is 1,038.71 ft above mean sea level. Prior to Oct. 1, 1954, nonrecording gage at site 8 miles upstream at different datum.
AVERAGE DISCHARGE.--31 years, 478 cfs (4.96 inches per year, 346,300 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 4,600 cfs Mar. 18 (gage height, 14.94 ft); maximum gage height, 16.67 ft Mar. 17 (backwater from ice); minimum daily discharge, 18 cfs Sept. 15-22, 25, 26, 28, 30.
Period of record: Maximum discharge, 18,800 cfs June 21, 1954 (gage height, 16.95 ft, from floodmark, site and datum then in use); minimum daily, 5.0 cfs Sept. 23, 1948.
Flood of June 21, 1954, reached a stage of 24.02 ft (discharge, 17,400 cfs) at present site. Flood of September 1938 reached a stage of 17.4 ft (discharge, about 22,000 cfs) site and datum in use during the period 1940-54.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--One discharge measurement furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1944, 1945-47 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used May 16 to July 22, Sept. 29, 30; stage-discharge relation indefinite July 23 to Aug. 18; stage-discharge relation affected by ice Nov. 23, 24, Dec. 5-7, 12-21, Dec. 24 to Mar. 18).

7.4	18	8.0	130	12.0	2,360
7.6	44	8.5	306	14.0	3,860
7.8	80	9.0	540	15.0	4,760

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	136	324	104	56	1,170	4,050	475	584	879	114	27
2	28	132	336	104	54	1,090	3,940	460	478	710	104	29
3	26	131	464	102	51	1,020	3,680	434	449	663	94	29
4	24	130	333	58	50	960	3,260	415	605	1,200	88	27
5	23	134	210	38	52	850	2,810	411	784	1,740	82	29
6	21	141	126	33	50	770	2,450	400	847	1,350	77	27
7	27	169	142	49	50	700	2,190	382	1,650	1,060	74	26
8	47	190	252	56	46	660	2,000	361	2,300	862	71	26
9	75	209	265	59	42	620	1,830	349	2,410	710	68	25
10	94	213	212	58	45	610	1,670	337	2,070	622	65	25
11	133	263	206	60	46	630	1,560	323	1,870	566	60	24
12	162	352	198	64	46	690	1,470	300	1,790	493	57	23
13	167	402	180	70	45	1,160	1,370	284	1,710	432	54	21
14	157	416	168	72	45	2,300	1,290	269	1,590	387	51	20
15	140	401	168	70	45	3,800	1,220	264	1,430	350	49	18
16	127	386	176	69	46	3,960	1,160	252	1,240	307	47	18
17	120	381	178	68	50	4,080	1,090	237	1,040	275	46	18
18	121	373	176	66	136	4,200	999	244	929	249	50	18
19	127	368	148	65	600	3,520	908	265	924	221	46	18
20	127	361	128	64	1,490	3,830	832	286	858	198	45	18
21	123	359	150	64	1,520	3,920	792	304	771	188	43	18
22	129	353	157	64	1,490	3,660	742	360	695	173	40	18
23	133	168	143	65	1,440	3,220	693	407	633	192	37	21
24	129	196	130	65	1,320	2,780	644	509	583	160	35	20
25	125	280	134	65	1,300	2,540	606	486	536	134	35	18
26	130	311	126	66	1,280	2,440	570	501	494	231	32	18
27	140	303	118	66	1,240	2,360	553	566	461	223	31	20
28	137	306	114	64	1,200	2,970	537	524	454	173	30	18
29	134	310	108	63	------	3,570	514	459	482	150	30	20
30	133	307	108	61	------	3,620	494	408	1,050	132	29	18
31	134	------	106	57	------	3,890	------	390	------	122	27	------
TOTAL	3,222	8,181	5,784	2,029	13,835	71,590	45,924	11,662	31,717	15,152	1,711	655
MEAN	104	273	187	65.5	494	2,309	1,531	376	1,057	489	55.2	21.8
MAX	167	416	464	104	1,520	4,200	4,050	566	2,410	1,740	114	29
MIN	21	130	106	33	42	610	494	237	449	122	27	18
CFSM	.08	.21	.14	.05	.38	1.77	1.17	.29	.81	.37	.04	.02
IN.	.09	.23	.16	.06	.39	2.04	1.31	.33	.90	.43	.05	.02
AC-FT	6,390	16,230	11,470	4,020	27,440	142,000	91,090	23,130	62,910	30,050	3,390	1,300

CAL YR 1970 TOTAL 100,262 MEAN 275 MAX 3,390 MIN 17 CFSM .21 IN 2.85 AC-FT 198,900
WTR YR 1971 TOTAL 211,462 MEAN 579 MAX 4,200 MIN 18 CFSM .44 IN 6.01 AC-FT 419,400

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-21	--	--	*	1,600	6-9	0200	12.27	2,480
3-18	--	--	*	4,600	7-4	2330	11.36	1,870
4-1	1415	14.27		4,070				

* About

05480000 LIZARD CREEK NEAR CLARE, IOWA

LOCATION.--Lat 42°32'35", long 94°20'45", in NE1/4 NE1/4 sec.11, T.89 N., R.30 W., Webster County, on right bank 20 ft downstream from bridge on county highway, 2.3 miles downstream from Drainage ditch 3, 3.0 miles south of Clare, and 8.2 miles upstream from South Lizard Creek.
DRAINAGE AREA.--257 sq mi.
PERIOD OF RECORD.--March 1940 to current year. Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1954, published as North Lizard Creek near Clare.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,079.30 ft above mean sea level. Prior to May 6, 1953, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--31 years, 90.3 cfs (4.77 inches per year, 65,420 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,880 cfs Mar. 14 (gage height, 7.64 ft); minimum daily, 0.76 cfs Sept. 16.
Period of record: Maximum discharge, 10,000 cfs June 23, 1947 (gage height, 16.0 ft, from floodmark), from rating curve extended above 5,300 cfs; no flow Sept. 30, 1943, Aug. 27-29, 1956, Jan. 15, 16, 1968.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--One discharge measurement furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1508: 1940, 1942, 1944-46 (M), 1947-48.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 14, 15, 22, 23, Dec. 4-7, Dec. 10 to Mar. 11).

2.97	0.70	3.3	25	6.0	945
3.0	1.1	3.6	76	7.0	1,510
3.1	6.4	4.0	173	8.0	2,150
3.2	14	5.0	500		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	19	40	13	4.4	186	646	50	68	118	19	2.1
2	2.6	18	42	12	4.1	164	433	46	93	89	18	1.5
3	1.5	23	34	10	3.9	146	304	44	71	72	16	1.5
4	1.2	26	21	8.0	3.8	128	264	44	60	156	15	1.9
5	.97	29	16	6.6	3.9	112	243	45	62	477	13	2.3
6	.97	27	14	5.0	3.9	106	212	43	115	752	13	1.0
7	6.7	28	20	5.6	3.9	100	192	43	315	549	12	.98
8	24	26	24	6.0	3.7	97	177	40	970	353	12	1.9
9	51	31	25	5.8	3.5	92	158	38	718	244	11	1.8
10	54	34	21	5.4	3.7	92	134	37	516	240	10	1.6
11	45	37	16	4.8	3.9	128	127	37	409	346	9.6	1.3
12	38	39	24	4.2	4.0	355	119	35	282	242	9.4	1.3
13	31	37	21	3.7	4.0	937	106	34	283	166	8.8	1.4
14	28	28	19	4.2	4.1	1,690	94	34	292	118	7.4	1.3
15	26	24	17	4.6	4.1	1,340	91	32	207	95	7.3	1.0
16	23	26	19	4.9	4.2	722	90	30	165	78	6.9	.76
17	20	31	20	5.1	4.4	517	90	30	135	66	6.1	.84
18	20	35	20	5.1	100	579	90	36	116	56	6.6	1.0
19	20	37	17	5.1	1,000	217	86	44	101	47	8.0	1.3
20	20	41	13	4.9	1,050	260	76	55	86	41	11	1.6
21	19	47	16	5.1	800	345	76	68	76	37	11	1.0
22	17	36	20	5.3	390	323	69	59	65	33	7.0	2.7
23	16	27	18	5.4	220	225	63	57	59	36	5.0	3.8
24	17	32	15	5.4	238	198	62	120	54	33	4.1	2.6
25	16	36	14	5.3	266	187	63	229	48	31	3.4	3.9
26	17	35	15	5.3	250	173	58	142	45	30	2.6	3.2
27	18	35	15	5.4	228	276	53	104	40	27	2.9	3.2
28	19	35	13	5.3	206	1,110	53	86	36	28	2.5	3.9
29	19	36	12	5.1	------	1,210	51	75	35	29	2.6	4.5
30	17	36	13	4.9	------	959	51	67	108	23	2.1	2.6
31	17	------	13	4.7	------	807	------	65	------	21	1.8	------
TOTAL	609.84	951	607	181.2	4,815.5	13,781	4,331	1,869	5,630	4,633	265.1	59.78
MEAN	19.7	31.7	19.6	5.85	172	445	144	60.3	188	149	8.55	1.99
MAX	54	47	42	13	1,050	1,690	646	229	970	752	19	4.5
MIN	.97	18	12	3.7	3.5	92	51	30	35	21	1.8	.76
CFSM	.08	.12	.08	.02	.67	1.73	.56	.23	.73	.58	.03	.008
IN.	.09	.14	.09	.03	.70	1.99	.63	.27	.81	.67	.04	.008
AC-FT	1,210	1,890	1,200	359	9,550	27,330	8,590	3,710	11,170	9,190	526	119

CAL YR 1970 TOTAL 20,849.24 MEAN 57.1 MAX 2,230 MIN .56 CFSM .22 IN 3.02 AC-FT 41,350
WTR YR 1971 TOTAL 37,733.42 MEAN 103 MAX 1,690 MIN .76 CFSM .40 IN 5.46 AC-FT 74,840

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-20	--	--	* 1,300	3-28	2130	6.70	1,330
3-14	2015	7.64	1,880	6-8	1200	6.19	1,030

* About

05480500 DES MOINES RIVER AT FORT DODGE, IOWA

LOCATION.--Lat 42°30'22", long 94°12'04", in NW1/4 SW1/4 sec.19, T.89 N., R.28 W., Webster County, on right bank 400 ft upstream from Soldier Creek, 1,800 ft downstream from Illinois Central Railroad bridge in Fort Dodge, 2,000 ft downstream from Lizard Creek, and at mile 314.6.
DRAINAGE AREA.--4,190 sq mi.
PERIOD OF RECORD.--April 1905 to July 1906 (no winter records), October 1913 to September 1927 (published as "at Kalo"), October 1956 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 969.38 ft above mean sea level. See WSP 1728 for history of changes prior to Dec. 8, 1949.
AVERAGE DISCHARGE.--39 years (1913-27, 1946-71), 1,346 cfs (4.36 inches per year, 975,200 acre-ft per year); median of yearly mean discharges, 1,170 cfs (3.8 inches per year, 848,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 12,700 cfs Mar. 15 (gage height, 9.24 ft); maximum gage height, 10.89 ft Feb. 19 (backwater from ice); minimum daily discharge, 77 cfs Sept. 25.
Period of record: Maximum discharge, 35,600 cfs Apr. 8, 1965 (gage height, 17.79 ft); maximum gage height, 19.62 ft, from floodmark, June 23, 1947, present site and datum; minimum daily discharge, 14 cfs Nov. 3, 1955.
REMARKS.--Records good except those for winter periods, which are poor. Diurnal fluctuation at low flow caused by powerplant above station. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--One discharge measurement furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1308: 1924, 1925 (M).

Rating tables (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23-26, Dec. 6 to Mar. 14).

Oct. 1 to Mar. 21

2.7	60	4.0	820
2.9	104	4.5	1,540
3.2	204	5.0	2,480
3.5	355	6.0	4,770

Note.--Same as following table above 6.1 ft.

Mar. 22 to Sept. 30

2.7	66	4.5	1,700
2.9	113	5.0	2,700
3.2	238	6.0	4,780
3.5	420	9.0	12,100
4.0	890		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	461	1,240	375	202	2,550	9,750	1,600	1,240	2,900	665	190
2	115	455	1,070	350	196	2,400	9,280	1,520	1,580	2,500	676	170
3	142	467	1,260	320	190	2,200	8,850	1,450	1,940	2,420	567	190
4	90	499	1,050	290	188	2,040	8,420	1,390	1,540	3,400	543	132
5	115	530	732	270	188	1,900	7,960	1,390	2,180	5,870	519	170
6	130	587	520	290	188	1,850	7,240	1,290	2,620	6,280	495	158
7	138	633	410	300	182	1,800	6,280	1,260	3,400	5,320	308	195
8	261	728	560	300	172	1,780	5,560	1,210	6,140	4,300	443	139
9	349	765	720	300	158	1,780	5,110	1,130	7,120	3,440	465	139
10	519	800	630	300	162	1,800	4,740	1,100	6,500	3,140	428	128
11	612	970	600	300	168	2,080	4,320	1,060	5,680	3,160	385	110
12	760	1,270	660	295	170	2,500	4,100	1,050	5,060	2,780	357	135
13	692	1,410	700	290	162	5,000	3,820	942	4,380	2,400	296	182
14	662	1,430	680	285	160	7,000	3,580	942	4,250	2,120	269	88
15	653	1,400	650	275	158	9,350	3,340	903	3,780	1,980	290	120
16	607	1,360	640	265	162	8,220	3,220	866	3,400	1,840	332	128
17	572	1,350	680	260	168	7,620	3,040	830	3,020	1,700	280	117
18	524	1,310	720	250	520	9,810	2,880	903	2,740	1,540	243	96
19	500	1,360	660	245	6,000	8,000	2,700	878	2,620	1,370	254	113
20	485	1,330	500	240	5,500	8,610	2,540	968	2,500	1,290	259	166
21	479	1,310	475	245	4,500	9,590	2,440	1,120	2,320	1,180	219	110
22	545	1,250	480	250	4,000	9,020	2,320	1,150	2,300	1,080	243	124
23	485	840	500	260	3,600	7,790	2,140	1,190	2,140	1,190	274	139
24	457	590	500	260	3,500	6,740	2,060	1,450	1,980	1,270	209	135
25	444	670	460	258	3,320	6,230	1,960	1,880	1,860	1,130	204	77
26	421	730	440	250	3,140	5,780	1,900	1,680	1,740	1,030	178	139
27	497	821	425	240	2,940	5,710	1,820	1,560	1,680	1,060	200	204
28	460	983	405	238	2,740	8,440	1,740	1,460	1,560	994	146	135
29	485	1,100	385	238	------	9,870	1,700	1,340	1,560	878	190	154
30	466	1,110	375	230	------	9,950	1,600	1,240	2,720	806	248	135
31	480	------	385	218	------	9,950	------	1,190	------	656	190	------
TOTAL	13,247	28,519	19,512	8,487	42,734	177,360	126,410	37,942	91,550	71,024	10,375	4,218
MEAN	427	951	629	274	1,526	5,721	4,214	1,224	3,052	2,291	335	141
MAX	760	1,430	1,260	375	6,000	9,950	9,750	1,880	7,120	6,280	676	204
MIN	90	455	375	218	158	1,780	1,600	830	1,240	656	146	77
CFSM	.10	.23	.15	.07	.36	1.37	1.01	.29	.73	.55	.08	.03
IN.	.12	.25	.17	.08	.38	1.57	1.12	.34	.81	.63	.09	.04
AC-FT	26,280	56,570	38,700	16,830	84,760	351,800	250,700	75,260	181,600	140,900	20,580	8,370

CAL YR 1970 TOTAL 336,006 MEAN 921 MAX 10,500 MIN 90 CFSM .22 IN 2.98 AC-FT 666,500
WTR YR 1971 TOTAL 631,378 MEAN 1,730 MAX 9,950 MIN 77 CFSM .41 IN 5.61 AC-FT 1,252,000

PEAK DISCHARGE (BASE, 6,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	--	--	* 10,000	3-29	2200	8.25	10,200
3-15	2115	9.24	12,700	6-9	0745	7.18	7,600
3-18	0800	8.56	11,000	7-5	1900	7.15	7,530

* About

05481000 BOONE RIVER NEAR WEBSTER CITY, IOWA

LOCATION.--Lat 42°26'01", long 93°48'12", in NW1/4 SE1/4 sec.18, T.88 N., R.25 W., Hamilton County, on right bank 10 ft upstream from bridge on State Highway 17, 2.5 miles southeast of junction of U.S. Highway 20 and State Highway 17 in Webster City, and 3.2 miles downstream from Brewers Creek.
DRAINAGE AREA.--844 sq mi.
PERIOD OF RECORD.--March 1940 to current year.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 989.57 ft above mean sea level. Prior to June 26, 1940, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--31 years, 356 cfs (5.73 inches per year, 257,900 acre-ft per year); median of yearly mean discharges, 260 cfs (4.2 inches per year, 188,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,660 cfs Mar. 16 (gage height, 8.48 ft); maximum gage height, 8.47 ft Feb. 22 (backwater from ice); minimum daily discharge, 13 cfs Oct. 6.
Period of record: Maximum discharge, 20,300 cfs June 22, 1954 (gage height, 18.55 ft); minimum daily, 1.6 cfs Sept. 30, Oct. 1, 1956.
Maximum stage since 1896, 19.1 ft about June 10, 1918, from floodmarks, from information by local resident (discharge, 21,500 cfs). Flood of June 18, 1932, reached a stage of 16.0 ft (discharge, 15,000 cfs).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1308: 1940 (M). WSP 1708: 1956.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Mar. 14-19; stage-discharge relation affected by ice Nov. 24-27, Dec. 11-15, Dec. 19 to Feb. 25, Mar. 1-4).

1.6	12	3.0	357
1.8	34	4.0	860
2.1	83	6.0	2,260
2.5	182	9.0	5,040

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	105	216	83	44	800	3,020	251	247	1,180	125	23
2	18	104	189	84	43	700	2,530	240	407	859	111	24
3	16	106	179	79	40	620	1,990	231	374	621	97	22
4	15	105	154	49	40	550	1,410	229	298	655	86	23
5	14	105	138	31	40	474	1,080	232	278	1,810	80	25
6	13	112	103	26	40	418	952	231	265	3,080	75	21
7	14	115	169	38	40	366	883	224	604	1,990	69	20
8	61	112	150	43	36	356	840	212	1,870	1,540	65	20
9	153	129	153	46	32	345	786	203	1,960	1,150	62	19
10	200	145	129	45	35	358	702	201	1,870	1,020	58	21
11	174	163	106	47	36	504	644	202	1,510	1,100	55	22
12	149	173	116	50	36	772	616	194	1,000	808	50	20
13	123	177	114	56	35	1,530	579	188	764	612	50	19
14	102	160	106	55	35	3,020	521	188	621	478	45	22
15	88	142	93	55	35	3,960	485	184	519	396	42	18
16	76	141	113	54	35	4,200	466	177	446	329	42	17
17	70	142	113	54	39	4,180	440	176	388	281	39	15
18	65	137	114	52	350	3,740	407	234	350	239	37	14
19	61	179	104	51	1,300	2,680	381	301	327	210	49	17
20	61	355	92	50	1,700	1,940	365	333	409	182	48	17
21	57	363	114	52	2,000	1,850	361	329	452	161	47	18
22	54	331	136	54	2,300	1,650	341	315	334	143	46	19
23	52	209	116	55	1,900	1,200	320	316	288	238	41	22
24	51	188	92	56	1,600	981	304	319	255	367	37	21
25	50	170	90	54	1,300	895	291	313	228	304	33	28
26	66	198	94	54	1,110	812	275	317	205	221	31	23
27	106	202	96	54	980	771	286	286	183	184	29	24
28	125	205	86	53	885	2,150	283	262	162	176	26	24
29	119	202	80	51	------	2,580	269	248	162	174	26	28
30	120	197	79	48	------	2,650	255	239	837	162	28	29
31	113	------	80	45	------	2,950	------	262	------	144	24	------
TOTAL	2,406	5,172	3,714	1,624	16,066	50,002	22,082	7,637	17,613	20,814	1,653	635
MEAN	77.6	172	120	52.4	574	1,613	736	246	587	671	53.3	21.2
MAX	200	363	216	84	2,300	4,200	3,020	333	1,960	3,080	125	29
MIN	13	104	79	26	32	345	255	176	162	143	24	14
CFSM	.09	.20	.14	.06	.68	1.91	.87	.29	.70	.80	.06	.03
IN.	.11	.23	.16	.07	.71	2.20	.97	.34	.78	.92	.07	.03
AC-FT	4,770	10,260	7,370	3,220	31,870	99,180	43,800	15,150	34,940	41,280	3,280	1,260

CAL YR 1970 TOTAL 83,798 MEAN 230 MAX 5,430 MIN 11 CFSM .27 IN 3.69 AC-FT 166,200
WTR YR 1971 TOTAL 149,418 MEAN 409 MAX 4,200 MIN 13 CFSM .48 IN 6.59 AC-FT 296,400

PEAK DISCHARGE (BASE, 2,200 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-22	--	--	*	2,700	4-1	0600	6.99	3,090
3-16	2345	8.48		4,660	7-6	0500	7.64	3,680

* About

05481300 DES MOINES RIVER NEAR STRATFORD, IOWA

LOCATION.--Lat 42°15'04", long 93°59'52", in NW1/4 NE1/4 sec.21, T.86 N., R.27 W., Webster County, on right bank 6 ft downstream from bridge on State Highway 175, 0.1 mile downstream from Skillet Creek, 4.0 miles southwest of Stratford, 7.3 miles downstream from Boone River and at mile 276.7.
DRAINAGE AREA.--5,452 sq mi.
PERIOD OF RECORD.--April 1920 to current year in reports of Geological Survey. Published as "near Boone" 1920-67. Monthly discharge only for some periods, published in WSP 1308. December 1904 to April 1920 (fragmentary gage heights during high-water periods only) in reports of U.S. Weather Bureau.
GAGE.--Water-stage recorder. Datum of gage is 894.00 ft above mean sea level. Prior to May 1, 1920, nonrecording gage 16.6 miles downstream at datum 23.49 ft lower. Oct. 9, 1924, to Jan. 10, 1933, nonrecording gage 17.6 miles downstream at datum 28.53 ft lower. Jan. 11, 1933, to Sept. 30, 1934, nonrecording gage 17.9 miles downstream at datum 22.25 ft lower. Oct. 1, 1934 to Feb. 6, 1935, nonrecording gage and Feb. 7, 1935 to Sept. 30, 1967, water-stage recorder 17.9 miles downstream at datum 21.84 ft lower.
AVERAGE DISCHARGE.--51 years, 1,693 cfs (4.22 inches per year, 1,227,000 acre-ft per year); median of yearly mean discharges, 1,430 cfs (3.6 inches per year, 1,040,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 14,800 cfs Mar. 18 (gage height, 15.98 ft); minimum daily, 122 cfs Sept. 20.
Period of record: Maximum discharge, 57,400 cfs June 22, 1954 (gage height, 25.35 ft, from graph based on hourly gage readings, site and datum then in use); no flow for a short time on Jan. 9, 25, 1938, caused by manipulation of gates in control dam (site then in use); minimum daily discharge, 17 cfs Jan. 28, 1940 (unaffected by gate operation, site then in use).
Flood of May 30, 1903, reached a stage of 25.4 ft, from high-water mark, site and datum then in use (discharge, 43,600 cfs). Flood of June 22, 1954, reached a stage of 29.7 ft, from floodmark, present site and datum (discharge, 54,200 cfs).
REMARKS.--Records good except those for winter period, which are poor. Diurnal fluctuation at low stages caused by powerplant at Fort Dodge. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--Five discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1925-27, 1934. WSP 1708: 1955.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Apr. 17 to June 2, June 13 to July 4; stage-discharge relation affected by ice Nov. 22 to Mar. 14).

3.4	102	6.0	1,630
3.6	157	8.0	3,570
4.0	305	12.0	8,500
4.5	550	16.0	14,800
5.0	860		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	181	646	1,460	500	260	3,650	13,800	1,950	1,510	4,310	917	241
2	164	622	1,450	470	250	3,400	13,200	1,880	1,600	3,820	903	238
3	166	622	1,330	440	240	3,100	12,100	1,810	2,210	3,240	895	223
4	161	634	1,220	390	240	2,900	11,100	1,700	2,250	3,100	750	236
5	150	652	960	360	240	2,700	10,200	1,670	2,070	6,040	715	221
6	148	676	420	380	240	2,550	9,440	1,640	2,740	10,100	676	233
7	161	730	500	390	230	2,450	8,440	1,530	3,090	9,330	644	198
8	256	776	620	390	210	2,350	7,480	1,480	6,110	7,560	474	218
9	523	892	850	395	200	2,350	6,890	1,400	8,980	6,010	565	188
10	621	912	750	400	210	2,500	6,380	1,330	9,290	4,940	583	172
11	763	953	700	395	220	4,000	5,830	1,300	8,340	4,960	540	181
12	838	1,160	750	390	220	5,000	5,470	1,230	7,150	4,520	496	137
13	899	1,420	800	385	210	7,000	5,120	1,200	6,040	3,800	468	161
14	828	1,530	900	370	210	10,000	4,700	1,100	5,450	3,260	417	186
15	785	1,530	800	350	210	14,000	4,400	1,080	4,950	2,910	371	156
16	763	1,490	750	350	210	14,100	4,110	1,030	4,390	2,640	391	138
17	712	1,480	800	340	220	12,900	3,910	991	3,900	2,400	418	148
18	676	1,470	800	330	670	13,500	3,700	1,100	3,500	2,180	371	142
19	628	1,490	750	320	4,000	13,100	3,460	1,290	3,220	1,960	355	127
20	616	1,770	650	320	7,000	11,200	3,260	1,330	3,110	1,750	394	122
21	592	1,850	620	320	8,000	12,000	3,110	1,410	3,070	1,620	371	170
22	598	1,600	640	320	7,000	12,200	2,940	1,500	2,870	1,480	302	149
23	646	1,200	660	330	6,000	10,600	2,780	1,510	2,680	1,580	334	148
24	592	1,000	640	340	5,500	8,920	2,560	1,610	2,480	2,010	364	173
25	562	900	600	330	5,000	8,150	2,470	1,950	2,260	2,010	294	162
26	550	1,100	580	320	4,700	7,560	2,350	2,120	2,060	1,620	269	146
27	652	1,250	560	310	4,300	7,100	2,300	1,930	1,950	1,450	252	159
28	682	1,350	530	300	3,950	9,310	2,240	1,810	1,820	1,440	246	210
29	652	1,400	490	300	------	12,400	2,130	1,670	1,690	1,310	200	171
30	664	1,450	480	290	------	13,300	2,060	1,540	2,550	1,200	236	217
31	646	------	500	280	------	13,500	------	1,560	------	1,090	286	------
TOTAL	16,875	34,555	23,560	11,100	59,940	247,790	167,930	46,651	113,330	105,640	14,497	5,371
MEAN	544	1,152	760	358	2,141	7,993	5,598	1,505	3,778	3,408	468	179
MAX	899	1,850	1,460	500	8,000	14,100	13,800	2,120	9,290	10,100	917	241
MIN	148	622	420	280	200	2,350	2,060	991	1,510	1,090	200	122
CFSM	.10	.21	.14	.07	.39	1.47	1.03	.28	.69	.63	.09	.03
IN.	.12	.24	.16	.08	.41	1.69	1.15	.32	.77	.72	.10	.04
AC-FT	33,470	68,540	46,730	22,020	118,900	491,500	333,100	92,530	224,800	209,500	28,750	10,650

CAL YR 1970 TOTAL 471,293 MEAN 1,291 MAX 15,300 MIN 148 CFSM .24 IN 3.21 AC-FT 934,400
WTR YR 1971 TOTAL 847,239 MEAN 2,321 MAX 14,100 MIN 122 CFSM .43 IN 5.78 AC-FT 1,680,000

PEAK DISCHARGE (BASE, 7,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-20	--	--	* 8,700	6-9	2100	12.65	9,420
3-18	2215	15.98	14,800	7-6	1530	13.72	11,000
4-1	1115	15.42	13,800				

* About

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IOWA

LOCATION.--Lat 41°40'50", long 93°40'07", near center of sec.5, T.79 N., R.24 W., Polk County, near center of span on downstream side of bridge on county highway F42, 2.0 miles west of Saylorville, 2.1 miles downstream from Rock Creek, 2.4 miles upstream from Beaver Creek, and at mile 211.6.
DRAINAGE AREA.--5,841 sq mi.
PERIOD OF RECORD.--October 1961 to current year.
GAGE.--Water-stage recorder. Datum of gage is 787.42 ft above mean sea level (levels by Corps of Engineers). Prior to August 6, 1970, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--10 years, 2,429 cfs (5.65 inches per year, 1,760,000 acre-ft per year); median of yearly mean discharges, 1,980 cfs (4.6 inches per year, 1,430,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 13,900 cfs Mar. 17 (gage height, 16.75 ft, backwater from ice); minimum daily, 153 cfs Sept. 22.
Period of record: Maximum discharge, 47,400 cfs Apr. 10, 1965 (gage height, 24.02 ft); minimum daily, 44 cfs Jan. 10, 1968.
Maximum stage since at least 1893, 24.5 ft June 24, 1954, from floodmarks (discharge, 60,000 cfs).
REMARKS.--Records good except those for winter period, which are fair. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.
COOPERATION.--Five discharge measurements furnished by Corps of Engineers.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	286	737	1,640	560	330	4,300	13,600	2,840	2,220	2,480	1,160	233
2	277	725	1,530	540	320	4,100	13,600	2,770	2,140	4,060	1,040	268
3	252	703	1,460	520	310	3,900	13,300	2,690	2,150	3,920	968	246
4	235	731	1,380	450	300	3,700	12,700	2,600	2,580	3,460	942	250
5	235	749	1,280	400	290	3,600	12,100	2,540	2,840	3,280	829	248
6	227	755	1,000	430	280	3,500	11,100	2,460	2,600	5,600	775	246
7	219	755	600	440	270	3,300	10,200	2,490	3,170	9,020	728	230
8	239	797	750	450	260	3,200	9,220	2,410	3,510	9,360	688	229
9	539	850	870	460	250	3,100	8,190	2,270	6,120	7,700	629	216
10	767	900	900	460	220	3,100	7,580	2,170	8,320	6,150	547	222
11	749	950	800	450	230	3,200	7,000	2,040	8,800	5,120	568	212
12	709	1,000	750	440	230	4,400	6,620	1,920	8,020	4,990	565	204
13	797	1,150	800	440	240	5,500	6,300	1,920	6,960	4,590	537	191
14	904	1,400	850	430	240	8,000	5,990	1,810	6,070	3,920	496	175
15	891	1,520	900	420	240	10,500	5,510	1,730	5,550	3,410	456	173
16	845	1,620	820	410	240	12,500	5,180	1,640	5,110	3,010	407	185
17	797	1,580	800	390	280	13,000	4,960	1,590	4,530	2,730	385	180
18	791	1,570	850	380	700	13,800	4,760	2,200	4,080	2,450	381	163
19	743	1,590	820	370	3,500	13,500	4,510	2,900	3,680	2,190	386	167
20	698	1,640	800	360	6,000	13,100	4,260	2,440	3,380	1,990	375	176
21	681	1,770	720	360	7,500	12,400	4,040	2,240	3,200	1,810	350	173
22	681	1,650	690	370	8,100	12,300	3,840	2,180	3,130	1,690	357	153
23	676	1,450	700	370	7,100	12,400	3,660	2,250	2,960	1,570	338	178
24	692	1,250	720	380	6,100	11,500	3,560	2,380	2,860	1,550	308	185
25	703	1,050	700	390	5,700	9,700	3,350	2,460	2,670	1,830	311	177
26	659	950	680	390	5,200	8,920	3,240	2,600	2,490	1,930	317	199
27	643	1,200	660	380	4,800	8,320	3,210	2,860	2,280	1,680	291	200
28	648	1,350	640	370	4,600	8,010	3,100	2,710	2,080	1,480	276	193
29	648	1,500	620	360	------	9,840	2,980	2,570	1,920	1,440	263	177
30	731	1,600	600	350	------	12,000	2,900	2,430	2,100	1,340	255	213
31	767	------	580	340	------	13,200	------	2,280	------	1,250	235	------
TOTAL	18,729	35,492	26,910	12,860	63,830	251,890	200,560	72,390	117,520	107,000	16,163	6,062
MEAN	604	1,183	868	415	2,280	8,125	6,685	2,335	3,917	3,452	521	202
MAX	904	1,770	1,640	560	8,100	13,800	13,600	2,900	8,800	9,360	1,160	268
MIN	219	703	580	340	220	3,100	2,900	1,590	1,920	1,250	235	153
CFSM	.10	.20	.15	.07	.39	1.39	1.14	.40	.67	.59	.09	.03
IN.	.12	.23	.17	.08	.41	1.60	1.28	.46	.75	.68	.10	.04
AC-FT	37,150	70,400	53,380	25,510	126,600	499,600	397,800	143,600	233,100	212,200	32,060	12,020

CAL YR 1970 TOTAL 523,905 MEAN 1,435 MAX 13,700 MIN 168 CFSM .25 IN 3.34 AC-FT 1,039,000
WTR YR 1971 TOTAL 929,406 MEAN 2,546 MAX 13,800 MIN 153 CFSM .44 IN 5.92 AC-FT 1,843,000

PEAK DISCHARGE (BASE, 8,000 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-23	--	--	*	8,500	6-11	0515	13.46	8,870
3-17	--	--	*	13,900	7-7	2000	14.17	9,880
4-2	0400	16.42		13,700				

* About

05481950 BEAVER CREEK NEAR GRIMES, IOWA

LOCATION.--Lat 41°41'18", long 93°44'08", 200 ft east of southwest corner of sec.35, T.80 N., R.25 W., Polk County, on right bank 6 ft upstream from bridge on Northwest 70th Avenue, 0.5 mile downstream from Little Beaver Creek, 2.5 miles east of Grimes and 6 miles upstream from mouth.
DRAINAGE AREA.--358 sq mi.
PERIOD OF RECORD.--April 1960 to current year.
GAGE.--Water-stage recorder and concrete and steel sheeting broad-crested control. Datum of gage is 806.98 ft above mean sea level. Prior to Aug. 31, 1966, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--11 years, 164 cfs (6.22 inches per year, 118,800 acre-ft per year); median of yearly mean discharges, 120 cfs (4.6 inches per year, 86,900 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 1,900 cfs Feb. 20 (gage height, 13.35 ft, backwater from ice); no flow Sept. 17, 18.
Period of record: Maximum discharge, 5,480 cfs May 26, 1960 (gage height, 14.05 ft); no flow Sept. 8, 11-13, 1970, Sept. 17, 18, 1971.
REMARKS.--Records good except those for winter period, which are poor.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 21-26, Dec. 5, 6, 9-15, Dec. 22 to Mar. 13).

4.9	0	5.4	36	6.5	465
5.0	.95	5.5	63	8.0	860
5.1	3.0	5.7	135	10.0	1,410
5.2	7.4	6.0	270	11.0	1,840
5.3	17				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	68	109	18	11	850	234	73	171	73	4.6	.10
2	4.7	61	95	17	10	660	198	70	167	63	6.8	.20
3	3.1	58	89	15	9.5	500	171	73	149	48	5.1	.05
4	2.8	44	73	12	9.0	400	162	70	140	43	4.1	.59
5	3.0	46	60	9.0	8.5	350	149	77	135	48	3.3	1.1
6	3.4	43	46	10	8.0	300	140	73	189	41	3.3	.70
7	4.1	41	36	11	8.5	250	135	98	257	43	3.0	.40
8	12	41	60	11	10	200	131	189	203	66	2.8	.30
9	73	60	70	12	12	170	131	194	167	125	2.5	.40
10	116	70	75	12	15	200	116	171	144	100	2.0	.70
11	103	75	54	13	18	350	112	149	131	75	1.6	.70
12	84	73	51	14	21	550	116	131	119	62	1.2	.60
13	63	63	45	14	24	850	105	123	116	45	1.2	.50
14	51	53	38	14	27	1,180	101	116	162	38	1.1	.30
15	40	43	42	15	30	1,050	91	105	119	31	.95	.05
16	32	44	61	15	32	733	91	98	119	29	.70	.04
17	29	43	54	15	40	510	94	91	105	26	.40	0
18	27	43	54	15	600	427	87	347	94	23	.20	0
19	31	47	32	15	1,400	391	84	813	91	15	.30	.14
20	30	76	34	15	1,800	315	80	698	84	12	.40	.20
21	31	100	50	15	1,400	387	80	522	70	11	.40	.20
22	38	110	40	16	1,000	387	77	399	63	9.7	.50	.22
23	50	90	50	16	800	327	70	343	60	11	.40	.33
24	54	80	50	16	700	248	66	367	54	13	.40	.40
25	57	90	28	16	600	243	63	315	51	10	.20	.50
26	54	100	27	14	550	212	60	275	46	9.1	.10	.80
27	73	114	25	11	700	207	87	243	43	7.8	.10	.80
28	99	110	23	11	940	230	87	216	36	7.1	.20	.60
29	104	116	17	12	------	252	80	203	31	6.3	.30	.50
30	95	112	16	13	------	243	77	189	70	5.4	.30	.30
31	80	------	18	12	------	239	------	180	------	5.1	.20	------
TOTAL	1,451.8	2,114	1,522	424.0	10,783.5	13,211	3,275	7,011	3,386	1,101.5	48.65	11.72
MEAN	46.8	70.5	49.1	13.7	385	426	109	226	113	35.5	1.57	.39
MAX	116	116	109	18	1,800	1,180	234	813	257	125	6.8	1.1
MIN	2.8	41	16	9.0	8.0	170	60	70	31	5.1	.10	0
CFSM	.13	.20	.14	.04	1.08	1.19	.30	.63	.32	.10	.004	.001
IN.	.15	.22	.16	.04	1.12	1.37	.34	.73	.35	.11	.005	.001
AC-FT	2,880	4,190	3,020	841	21,390	26,200	6,500	13,910	6,720	2,180	97	23

CAL YR 1970 TOTAL 41,379.15 MEAN 113 MAX 3,610 MIN 0 CFSM .32 IN 4.30 AC-FT 82,080
WTR YR 1971 TOTAL 44,340.17 MEAN 121 MAX 1,800 MIN 0 CFSM .34 IN 4.61 AC-FT 87,950

PEAK DISCHARGE (BASE, 1,500 CFS).--Feb. 20 (time unknown) about 1,900 cfs.

05482140 STORM LAKE AT STORM LAKE, IOWA

LOCATION.--Lat 42°38'07", long 95°14'11" in NW1/4 SE1/4 sec.5, T.90 N., R.37 W., Buena Vista County, on downstream side of bridge on State Highway 110, 2 miles southwest of Storm Lake.
DRAINAGE AREA.--28.3 sq mi.
PERIOD OF RECORD.--April 1970 to current year.
GAGE.--Nonrecording gage. Datum of gage is 1,391.21 ft above mean sea level.
EXTREMES.--1970: Maximum gage height observed during period April to September, 7.77 ft Apr. 24, 26, 27; minimum observed, 6.07 ft Sept. 29.
Current year: Maximum gage height observed, 8.51 ft June 8; minimum observed, 6.00 ft Oct. 2.
Period of record: Maximum gage height observed, 8.51 ft June 8, 1971; minimum observed, 6.00 ft Oct. 2, 1970.
REMARKS.--Lake is formed by concrete dam with ungated spillway at elevation 1,398.56 ft above mean sea level. Lake is used for conservation and recreation. Area of lake is approximately 3,000 acres.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								7.68	7.49	7.11	6.70	
2									7.45	7.11	6.68	
3								7.68	7.45	7.07	6.65	
4								7.67				
5								7.67	7.39	7.00	6.70	
6								7.70	7.37	6.98		
7								7.60	7.37	6.97	6.72	
8								7.59	7.36	6.96	6.72	
9									7.35		6.72	
10									7.34		6.71	
11								7.60		6.95	6.68	
12								7.60	7.40	6.91	6.67	
13								7.64	7.32	6.91		
14								7.69	7.31	6.88	6.62	
15								7.65	7.31	6.92	6.59	
16								7.67	7.34		6.59	
17								7.66	7.33	6.87	6.57	
18								7.65		6.95	6.57	6.12
19								7.67	7.28	6.91	6.57	6.18
20								7.64	7.26	6.90		
21								7.59	7.25	6.87		6.11
22								7.59	7.23			6.08
23								7.58	7.22	6.83		6.08
24							7.77			6.79		6.12
25							7.76	7.55		6.76		6.14
26							7.77	7.56	7.15	6.78		
27							7.77		7.13	6.78		6.12
28							7.70	7.57	7.10	6.76		6.10
29					------		7.69	7.51	7.09	6.76		6.07
30					------		7.66	7.51	7.08			6.08
31		------			------		------	7.51	------	6.75		------

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.06										7.42	
2	6.00	6.40									7.43	
3		6.39								7.57		
4		6.38						7.58	7.54	7.97	7.41	6.93
5		6.45							7.54	7.88		6.87
6		6.40							7.58	7.85	7.37	6.82
7	6.10						7.99			7.90	7.34	6.82
8		6.45							8.51		7.32	6.82
9		6.46				7.44			8.26	7.86	7.30	6.77
10		6.50								7.96	7.27	6.76
11		6.48							8.17	7.99	7.25	6.76
12		6.48		6.61					8.10	7.95	7.24	
13	6.38	6.48							8.07			
14	6.38								8.04		7.23	
15	6.37								8.03	7.82		
16	6.37									7.79	7.18	
17	6.32							7.40	7.95	7.81	7.15	
18	6.33							7.48		7.74	7.12	
19	6.38	6.55							7.90	7.67	7.18	
20	6.38	6.51						7.44	7.87	7.68	7.20	
21	6.38									7.64	7.19	
22	6.36									7.69	7.16	6.55
23	6.37									7.74		
24	6.40							7.65		7.66		
25								7.51	7.76	7.62		
26	6.40						7.71		7.73	7.59		
27	6.39						7.79		7.69	7.57	7.04	
28	6.40								7.62		7.01	
29	6.40				------		7.65		7.65	7.54	6.98	
30	6.39	6.50			------					7.44	6.97	
31	6.38	------			------		------		------	7.43		------

05482170 BIG CEDAR CREEK NEAR VARINA, IOWA

LOCATION.--Lat 42°41'16", long 94°47'52", in NE1/4 NE1/4 sec.24, T.91 N., R.34 W., Pocahontas County, on left bank 5 ft downstream from bridge on county highway N33, 2.0 miles downstream from Drainage ditch 21, 3.5 miles upstream from Drainage ditch 74, and 5.5 miles northeast of Varina.
DRAINAGE AREA.--80.0 sq mi.
PERIOD OF RECORD.--October 1959 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,225.12 ft above mean sea level.
AVERAGE DISCHARGE.--12 years, 31.5 cfs (5.35 inches per year, 22,820 acre-ft per year); median of yearly mean discharges, 24 cfs (4.1 inches per year, 17,400 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,010 cfs June 7 (gage height, 10.66 ft); maximum gage height, 11.18 ft Feb. 19 (backwater from ice); minimum daily discharge, 0.33 cfs Oct. 3,4.
Period of record: Maximum discharge, 2,080 cfs Aug. 31, 1962 (gage height, 13.68 ft); maximum gage height, 15.05 ft Apr. 6, 1965 (backwater from ice); no flow at times in 1964, 1967, 1968.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Apr. 3 to May 23, June 7, 8, Aug. 11-18, Aug. 20 to Sept. 30; stage-discharge relation affected by ice Nov. 14-17, 19, Nov. 22 to Mar. 14, Mar. 18-24).

2.18	.29	2.6	6.5	5.0	149
2.2	.39	3.0	19	6.0	256
2.3	1.2	3.5	41	8.0	550
2.4	2.5	4.0	70		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.45	1.8	6.4	2.5	.80	37	177	12	62	24	7.3	2.4
2	.40	1.8	5.7	2.3	.76	33	100	11	42	21	7.0	.81
3	.33	3.0	5.2	2.0	.72	29	72	11	36	18	6.1	.51
4	.33	3.8	4.2	1.6	.70	25	63	11	37	93	5.9	1.1
5	.35	3.6	3.1	1.2	.70	22	53	11	48	145	5.8	2.6
6	.38	3.8	2.6	.96	.71	19	49	11	48	113	5.1	1.1
7	4.8	3.4	3.7	1.0	.70	19	46	9.9	798	63	5.0	.45
8	20	3.4	4.2	1.1	.70	19	42	9.4	509	47	4.3	.51
9	26	7.3	4.6	1.1	.65	19	34	9.1	365	37	4.2	.72
10	18	7.8	4.0	1.0	.68	22	31	9.1	266	77	3.9	.79
11	11	7.8	3.1	.90	.72	150	31	8.9	206	76	3.3	.70
12	7.8	7.1	4.1	.82	.74	400	29	8.0	154	51	3.3	.51
13	5.8	6.5	3.7	.70	.74	790	27	8.3	119	36	3.2	.51
14	4.5	5.7	3.4	.78	.76	700	26	8.0	87	29	2.5	.45
15	3.7	4.9	3.2	.86	.77	419	25	7.5	68	25	2.5	.39
16	3.2	4.2	3.5	.92	.78	252	24	7.1	60	22	2.4	.45
17	3.0	4.7	3.7	.94	2.0	196	20	7.2	51	19	2.4	.51
18	2.6	5.2	3.8	.94	130	160	19	9.6	43	18	1.9	.76
19	2.5	5.7	3.2	.94	520	78	18	24	37	16	5.0	.63
20	2.3	6.8	2.5	.94	310	86	17	25	33	15	2.5	.62
21	2.1	6.8	3.0	.96	220	78	18	19	29	14	1.9	.45
22	2.1	6.1	3.5	.98	155	72	16	17	27	14	1.8	.73
23	2.3	5.0	3.3	1.0	115	66	15	19	25	14	1.3	1.8
24	2.3	5.8	2.9	1.0	92	62	14	113	24	13	1.2	.78
25	2.0	6.4	2.7	1.0	72	58	13	65	22	12	.90	1.2
26	2.0	6.6	2.7	1.0	60	55	13	50	21	12	.81	3.3
27	2.3	6.5	2.7	1.0	49	157	15	41	20	12	.81	1.2
28	1.7	6.5	2.5	1.0	43	466	14	37	18	13	.81	.70
29	1.9	6.5	2.3	.96	------	357	13	34	17	9.2	.81	1.3
30	2.3	6.6	2.4	.92	------	296	12	32	30	8.5	.73	1.2
31	2.2	------	2.4	.86	------	251	------	34	------	7.7	.81	------
TOTAL	140.64	161.1	108.3	34.18	1,779.63	5,393	1,046	679.1	3,302	1,074.4	95.48	29.18
MEAN	4.54	5.37	3.49	1.10	63.6	174	34.9	21.9	110	34.7	3.08	.97
MAX	26	7.8	6.4	2.5	520	790	177	113	798	145	7.3	3.3
MIN	.33	1.8	2.3	.70	.65	19	12	7.1	17	7.7	.73	.39
CFSM	.06	.07	.04	.01	.80	2.18	.44	.27	1.38	.43	.04	.01
IN.	.07	.07	.05	.02	.83	2.51	.49	.32	1.54	.50	.04	.01
AC-FT	279	320	215	68	3,530	10,700	2,070	1,350	6,550	2,130	189	58

CAL YR 1970 TOTAL 6,099.10 MEAN 16.7 MAX 464 MIN .29 CFSM .21 IN 2.84 AC-FT 12,100
WTR YR 1971 TOTAL 13,843.01 MEAN 37.9 MAX 798 MIN .33 CFSM .47 IN 6.44 AC-FT 27,460

PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	--	--	*	800	3-28	0030	8.25	595
3-13	--	--	*	880	6-7	0730	10.66	1,010

* About

05482300 NORTH RACCOON RIVER NEAR SAC CITY, IOWA

LOCATION.--Lat 42°20'28", long 94°59'05", in NE1/4NW1/4 sec.24, T.87 N., R.36W., Sac County, on right bank 15 ft downstream from bridge on county highway, 0.2 mile upstream from Indian Creek, 0.9 mile downstream from Drainage ditch 73, and 5.6 miles south of Sac City.
DRAINAGE AREA.--713 sq mi.
PERIOD OF RECORD.--June 1958 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,144.60 ft above mean sea level (levels by Iowa Natural Resources Council).
AVERAGE DISCHARGE.--13 years, 250 cfs (4.76 inches per year, 181,100 acre-ft per year); median of yearly mean discharges, 210 cfs (4.0 inches per year, 152,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,200 cfs Mar. 14 (gage height, 13.40 ft); maximum gage height, 14.25 ft, from floodmark, Feb. 19 (backwater from ice); minimum daily discharge, 9.3 cfs Sept. 16, 17.
Period of record: Maximum discharge, 10,800 cfs Sept. 1, 1962 (gage height, 18.12 ft); minimum daily, 1.0 cfs Jan. 25 to Feb. 5, 1959.
Flood of June 21, 1954, reached a stage of 15.61 ft, from floodmark (discharge, 7,000 cfs).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet and discharge, in cubic feet per second).

Mar. 31 to Sept. 30

2.0	9.3	4.0	253
2.2	22	6.0	720
2.4	38	9.0	1,720
3.0	100	12.0	3,180

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	59	156	77	19	670	1,290	134	233	237	54	19
2	12	59	140	74	18	630	908	128	299	164	50	16
3	11	66	115	68	18	620	692	118	233	134	46	14
4	9.9	72	89	40	17	540	565	113	204	148	43	15
5	9.9	87	77	22	17	400	483	118	337	861	40	22
6	10	103	68	16	17	340	430	116	447	695	38	18
7	15	103	90	17	17	300	404	110	1,460	492	37	16
8	60	95	112	18	16	330	393	99	2,740	387	35	14
9	205	107	100	20	16	290	373	95	2,920	305	34	13
10	274	131	87	20	16	305	301	93	2,880	274	31	12
11	250	166	68	19	18	600	297	92	2,260	826	29	12
12	189	159	96	19	20	1,990	285	86	1,650	667	28	12
13	154	151	87	19	21	2,910	257	85	1,160	442	26	11
14	130	143	78	18	22	3,840	231	86	878	316	24	9.9
15	113	112	74	18	22	3,790	214	84	698	254	23	9.5
16	98	104	110	18	23	2,530	224	79	572	214	22	9.3
17	86	133	114	19	80	1,760	222	78	473	182	22	9.3
18	80	122	83	20	1,000	1,410	200	99	406	157	21	10
19	73	137	63	20	3,500	986	192	155	355	136	40	10
20	68	159	55	21	1,900	926	188	211	307	122	44	11
21	63	164	70	22	1,700	887	192	206	264	105	34	9.8
22	61	169	80	22	1,650	790	180	183	230	95	27	12
23	58	158	84	23	1,620	658	164	177	209	103	23	18
24	54	140	86	23	1,480	562	158	413	189	113	20	17
25	54	130	88	23	1,300	484	148	832	174	111	18	20
26	54	144	86	23	1,080	429	140	515	158	90	16	22
27	55	152	85	23	880	469	148	367	139	87	16	20
28	54	154	83	23	760	1,970	162	301	123	83	16	19
29	56	156	80	22	------	2,400	154	262	110	75	16	18
30	60	158	80	21	------	1,960	140	237	132	65	15	19
31	59	------	78	20	------	1,570	------	228	------	59	17	------
TOTAL	2,488.8	3,793	2,762	808	17,247	37,346	9,735	5,900	22,240	7,999	905	437.8
MEAN	80.3	126	89.1	26.1	616	1,205	325	190	741	258	29.2	14.6
MAX	274	169	156	77	3,500	3,840	1,290	832	2,920	861	54	22
MIN	9.9	59	55	16	16	290	140	78	110	59	15	9.3
CFSM	.11	.18	.13	.04	.86	1.69	.46	.27	1.04	.36	.04	.02
IN.	.13	.20	.14	.04	.90	1.95	.51	.31	1.16	.42	.05	.02
AC-FT	4,940	7,520	5,480	1,600	34,210	74,080	19,310	11,700	44,110	15,870	1,800	868

CAL YR 1970 TOTAL 62,252.6 MEAN 171 MAX 3,330 MIN 9.5 CFSM .24 IN 3.25 AC-FT 123,500
WTR YR 1971 TOTAL 111,661.6 MEAN 306 MAX 3,840 MIN 9.3 CFSM .43 IN 5.83 AC-FT 221,500

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-19	unknown	14.25	4,000*	3-29	0900	10.62	2,490
3-14	2300	13.40	4,200	6-10	0045	11.82	3,070

* about

05482315 BLACKHAWK LAKE AT LAKE VIEW, IOWA

LOCATION.--Lat 42°18'15", long 95°02'30", in NW1/4 SE1/4 sec.33, T.87 N., R.36 W., Sac County, on south shore across from swimming beach at Lake View and 2 miles upstream from lake outlet.
DRAINAGE AREA.--23.3 sq mi.
PERIOD OF RECORD.--April 1970 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,218.50 ft above mean sea level and 2.00 ft below crest of spillway of dam at outlet. Prior to June 25, 1970, nonrecording gage at lake outlet.
EXTREMES.--1970: Maximum observed gage height during period April to September, 2.60 ft April 25, 27, May 1; minimum, 1.51 ft Sept. 12.
Current year: Maximum gage height, 3.45 ft Feb. 20; minimum, 0.76 ft Sept. 28.
Period of record: Maximum gage height, 3.45 ft Feb. 20, 1971; minimum, 0.76 ft Sept. 28, 1971.
REMARKS.--Lake is formed by concrete dam with ungated overflow spillway at elevation 1,220.50 ft above mean sea level. Lake is used for conservation and recreation. Area of lake is approximately 957 acres.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								2.60	2.42	2.14	1.94	1.71
2								2.56	2.40	2.13	1.93	1.70
3								2.54	2.38	2.11	1.90	1.68
4								2.54	2.36	2.08	1.99	1.68
5								2.54	2.36	2.07	2.01	1.69
6								2.52	2.34	2.06	2.02	1.68
7								2.50	2.34	2.04	2.04	1.63
8								2.52	2.32	2.02	2.04	1.62
9								2.48	2.30	2.02	2.04	1.60
10								2.46	2.30	2.01	2.03	1.59
11								2.46	2.30	2.00	2.02	1.59
12								2.44	2.30	1.98	2.01	1.55
13								2.42	2.30	1.96	2.00	1.54
14								2.54		1.96	1.99	1.60
15								2.54		1.97	1.94	1.67
16								2.54		1.97	1.93	1.68
17								2.54		1.95	1.94	1.69
18								2.54		2.02	1.93	1.69
19								2.52		2.01	1.90	1.69
20								2.52		1.99	1.89	1.70
21								2.50		1.98	1.88	1.67
22								2.50		1.96	1.87	1.66
23								2.50		1.94	1.86	1.67
24							2.50	2.50		1.91	1.84	1.68
25							2.60	2.50	2.23	1.90	1.83	1.68
26							2.56	2.48	2.25	1.89	1.82	1.67
27							2.60	2.48	2.25	1.87	1.79	1.65
28							2.56	2.46	2.24	1.89	1.79	1.65
29					------		2.56	2.46	2.19	1.94	1.76	1.64
30					------		2.56	2.44	2.18	1.93	1.73	1.64
31		------			------		------	2.42	------	1.95	1.72	------

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.63	1.79	2.01	2.04	2.06	2.86	2.76	2.25	2.23	1.97	1.55	1.12
2	1.59	1.80	2.02	2.03	2.06	2.81	2.72	2.24	2.23	1.95	1.54	1.10
3	1.58	1.83	1.96	2.08	2.05	2.76	2.71	2.25	2.23	1.94	1.53	1.09
4	1.58	1.81	2.01	2.11	2.07	2.72	2.68	2.23	2.23	1.93	1.52	1.08
5	1.58	1.82	1.98	2.10	2.09	2.68	2.65	2.26	2.23	1.93	1.49	1.04
6	1.58	1.80	2.00	2.09	2.08	2.66	2.63	2.25	2.26	1.93	1.48	1.02
7	1.60	1.82	2.00	2.09	2.08	2.64	2.61	2.24	2.29	1.94	1.47	1.02
8	1.70	1.84	2.00	2.10	2.08	2.62	2.58	2.23	2.30	1.93	1.45	.99
9	1.79	1.87	2.00	2.09	2.08	2.60	2.55	2.23	2.31	1.93	1.44	.97
10	1.84	1.88	2.03	2.09	2.07	2.59	2.55	2.24	2.31	1.95	1.42	.95
11	1.84	1.88	2.06	2.08	2.07	2.60	2.49	2.23	2.29	1.96	1.40	.94
12	1.84	1.89	2.06	2.08	2.07	2.75	2.47	2.21	2.28	1.95	1.38	.92
13	1.84	1.89	2.06	2.08	2.08	3.01	2.43	2.19	2.27	1.92	1.37	.91
14	1.83	1.88	2.06	2.08	2.08	3.16	2.42	2.18	2.25	1.91	1.36	.87
15	1.83	1.88	2.06	2.08	2.08	3.15	2.43	2.17	2.25	1.88	1.35	.85
16	1.83	1.88	2.07	2.08	2.08	3.07	2.38	2.16	2.24	1.86	1.33	.83
17	1.81	1.88	2.07	2.08	2.08	3.00	2.40	2.15	2.23	1.85	1.32	.82
18	1.81	1.89	2.07	2.08	2.25	2.97	2.40	2.19	2.20	1.82	1.29	.81
19	1.82	1.96	2.07	2.08	3.10	2.97	2.38	2.24	2.19	1.78	1.30	.81
20	1.82	1.96	2.07	2.08	3.44	2.92	2.38	2.27	2.15	1.77	1.30	.80
21	1.82	1.98	2.06	2.08	3.37	2.89	2.41	2.29	2.14	1.74	1.28	.78
22	1.82	1.90	2.06	2.07	3.33	2.86	2.38	2.31	2.12	1.72	1.25	.79
23	1.82	1.97	2.06	2.07	3.23	2.84	2.33	2.29	2.10	1.72	1.24	.81
24	1.82	1.97	2.05	2.07	3.13	2.81	2.33	2.25	2.08	1.69	1.23	.82
25	1.83	1.96	2.05	2.07	3.06	2.79	2.32	2.24	2.05	1.67	1.21	.85
26	1.82	1.96	2.05	2.07	3.00	2.77	2.32	2.24	2.04	1.64	1.19	.86
27	1.82	1.96	2.04	2.07	2.96	2.76	2.30	2.23	2.00	1.63	1.17	.86
28	1.81	1.98	2.04	2.07	2.91	2.79	2.26	2.23	1.96	1.62	1.16	.84
29	1.81	1.99	2.04	2.07	------	2.82	2.28	2.22	1.95	1.61	1.14	.87
30	1.80	2.00	2.04	2.07	------	2.83	2.26	2.23	1.98	1.58	1.13	.88
31	1.80	------	2.04	2.07	------	2.82	------	2.24	------	1.57	1.12	------

05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IOWA

LOCATION.--Lat 41°59'17", long 94°22'36" in SW1/4 NW1/4 sec.20, T.83 N., R.30 W., Greene County, on right bank 5 ft downstream from bridge on State Highway 4, 0.1 mile downstream from Drainage ditch 33, and 40, 1.9 miles south of Jefferson, and 4.2 miles upstream from Hardin Creek.
DRAINAGE AREA.--1,619 sq mi.
PERIOD OF RECORD.--March 1940 to current year. Prior to April 1940, monthly discharge only, published in WSP 1308. Prior to October 1955, published as Raccoon River near Jefferson.
GAGE.--Water-stage recorder. Datum of gage is 967.09 ft above mean sea level. Prior to Apr. 22, 1946, nonrecording gage at site 4 miles upstream at different datum. Apr. 22 to June 25, 1946, nonrecording gage, June 26, 1946 to Sept. 30, 1955, water-stage recorder, Oct. 1, 1955 to Apr. 30, 1958, nonrecording gage, at present site and datum.
AVERAGE DISCHARGE.--31 years, 616 cfs (5.17 inches per year, 446,300 acre-ft per year), median of yearly mean discharges, 500 cfs (4.2 inches per year, 362,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 7,160 cfs Mar. 15 (gage height, 13.70 ft); maximum gage height, 15.75 ft Feb. 21 (backwater from ice); minimum daily discharge, 27 cfs Sept. 21, 22, 24.
Period of record: Maximum discharge, 29,100 cfs June 23, 1947 (gage height, 22.3 ft); minimum daily, 0.6 cfs Oct. 5, 1956.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1950-51.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 23 to Dec. 1, Dec. 6 to Mar 3).

3.1	21	5.0	500
3.4	50	7.0	1,420
3.8	114	10.0	3,400
4.2	216	14.0	7,550

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	153	395	176	43	2,380	2,780	331	448	208	106	38
2	41	148	384	170	42	2,160	2,250	307	416	228	98	39
3	40	148	352	146	40	2,040	1,780	296	424	296	93	39
4	38	150	317	94	39	2,030	1,430	289	428	242	87	43
5	37	158	275	45	39	2,040	1,210	275	373	222	82	41
6	35	171	190	35	39	1,890	1,060	272	352	349	79	38
7	36	191	250	41	38	1,690	955	293	500	824	76	37
8	57	213	305	47	38	1,520	911	282	732	770	75	37
9	82	222	288	53	37	1,500	848	260	2,270	588	72	39
10	293	236	212	56	36	1,560	826	248	2,650	484	68	38
11	652	303	144	58	40	2,010	754	233	2,860	411	65	36
12	608	331	262	59	45	3,400	708	225	2,620	480	64	35
13	520	345	218	58	47	4,430	684	213	2,020	860	62	32
14	416	324	198	57	49	6,170	640	208	1,540	650	62	30
15	349	300	180	55	50	7,030	596	205	1,190	510	61	30
16	303	272	264	52	51	6,880	564	199	965	405	59	29
17	266	275	262	50	200	6,020	560	194	799	345	57	30
18	242	272	220	49	1,200	3,530	544	266	692	293	54	29
19	225	289	148	48	4,000	2,700	528	307	616	245	54	29
20	210	314	126	48	6,000	2,020	496	342	548	219	50	30
21	196	468	150	49	6,000	2,030	488	440	488	196	49	27
22	188	532	178	50	3,620	1,960	476	488	440	178	59	27
23	180	455	196	52	2,580	1,710	448	476	392	166	60	28
24	171	410	200	53	1,980	1,460	420	460	356	149	56	27
25	163	480	200	53	1,880	1,320	392	432	324	146	49	31
26	158	435	198	53	2,020	1,140	373	817	293	137	45	33
27	182	385	194	53	2,200	1,000	363	821	266	139	44	37
28	163	380	192	52	2,520	1,290	359	644	239	131	41	38
29	158	380	186	51	------	3,040	356	552	221	140	39	36
30	158	390	182	49	------	3,900	352	492	228	127	38	35
31	155	------	180	46	------	3,430	------	468	------	114	38	------
TOTAL	6,365	9,130	7,046	1,958	34,873	85,280	24,151	11,335	25,690	10,252	1,942	1,018
MEAN	205	304	227	63.2	1,245	2,751	805	366	856	331	62.6	33.9
MAX	652	532	395	176	6,000	7,030	2,780	821	2,860	860	106	43
MIN	35	148	126	35	36	1,000	352	194	221	114	38	27
CFSM	.13	.19	.14	.04	.77	1.70	.50	.23	.53	.20	.04	.02
IN.	.15	.21	.16	.04	.80	1.96	.55	.26	.59	.24	.04	.02
AC-FT	12,620	18,110	13,980	3,880	69,170	169,200	47,900	22,480	50,960	20,330	3,850	2,020

CAL YR 1970 TOTAL 139,346 MEAN 382 MAX 4,540 MIN 35 CFSM .24 IN 3.20 AC-FT 276,400
WTR YR 1971 TOTAL 219,040 MEAN 600 MAX 7,030 MIN 27 CFSM .37 IN 5.03 AC-FT 434,500

PEAK DISCHARGE (BASE 4,000 CFS).--Feb. 21 (0200) about 6,300 cfs (15.75 ft); Mar. 15 (1600) 7,160 cfs (13.70 ft).

05483000 EAST FORK HARDIN CREEK NEAR CHURDAN, IOWA

LOCATION.--Lat 42°06'27", long 94°22'12", in SE1/4SW1/4 sec.5, T.84 N., R.30 W., Greene County, on left bank 35 ft upstream from bridge on county highway E26, 1.6 miles upstream from small left-bank tributary, 4.4 miles upstream from mouth, and 6.5 miles southeast of Churdan.
DRAINAGE AREA.--24.0 sq mi.
PERIOD OF RECORD.--July 1952 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,050.90 ft above mean sea level.
AVERAGE DISCHARGE.--19 years, 7.87 cfs (4.45 inches per year, 5,700 acre-ft per year); median of yearly mean discharges, 6.6 cfs (3.7 inches per year, 4,800 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 200 cfs Feb. 19 (gage height, 7.86 ft); no flow Aug. 23 to Sept. 30.
Period of record: Maximum discharge, 413 cfs May 5, 1960 (gage height, 8.92 ft), from rating curve extended above 270 cfs; no flow at times most years.
REMARKS.-- Records good except those for winter periods or those below 2.0 cfs, which are poor. Small diversion for irrigation above station. Records of periodic chemical and suspended-sediment analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1708: 1954-55, 1957 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used June 17 to July 12; stage-discharge relation affected by ice Nov. 22-24, Dec. 4-9, 11-16, 18, 19, Dec. 23 to Mar. 19, 23, 24, Apr. 2).

1.45	0	2.0	5.1
1.5	.02	2.5	17
1.6	.17	3.0	32
1.7	.75	4.0	76
1.8	1.8	5.0	139

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	1.8	3.8	1.8	.56	16	11	3.1	2.6	.79	.09	
2	.04	1.7	2.8	.94	.56	11	9.9	2.9	2.2	.64	.09	
3	.03	1.6	3.8	.52	.51	10	8.4	2.9	2.1	.58	.09	
4	.02	1.3	3.3	.37	.51	9.8	7.4	3.3	2.1	.63	.08	
5	.02	1.6	2.7	.30	.51	11	7.0	3.4	2.1	.52	.08	
6	.02	1.8	2.3	.39	.51	8.0	7.0	2.9	2.3	.43	.07	
7	.02	1.5	3.6	.47	.50	6.1	7.3	2.8	2.2	.59	.06	
8	.38	1.5	3.7	.54	.47	5.7	7.2	2.6	1.7	.52	.06	
9	1.1	2.9	3.5	.60	.41	6.8	5.7	2.7	1.8	.29	.06	
10	.66	3.6	3.3	.58	.44	19	6.0	2.7	1.9	.33	.04	
11	.33	3.5	2.3	.62	.47	50	6.3	2.5	1.8	.34	.03	
12	.24	3.3	2.8	.66	.47	64	6.0	2.3	1.6	.27	.04	
13	.24	3.5	3.0	.72	.45	86	5.2	2.7	2.1	.34	.03	
14	.20	3.3	3.0	.72	.45	86	5.3	2.3	1.9	.34	.03	
15	.17	3.4	2.8	.70	.64	51	5.7	2.2	1.6	.46	.03	
16	.14	3.5	3.2	.70	10	26	5.4	2.1	1.3	.46	.03	
17	.17	3.4	2.9	.68	49	20	4.7	2.4	1.1	.40	.02	
18	.20	3.2	2.9	.67	110	25	4.6	3.2	1.6	.39	.01	
19	.17	4.0	2.6	.66	150	20	4.4	4.6	1.3	.28	.02	
20	.17	9.5	2.2	.65	99	16	4.5	5.5	1.1	.29	.01	
21	.17	8.1	2.9	.67	58	20	4.4	5.2	.88	.27	.01	
22	.28	5.8	3.4	.70	30	19	3.8	5.3	.91	.26	.01	
23	.28	5.0	2.1	.72	15	13	4.1	5.6	.79	.41	0	
24	.16	4.6	1.9	.73	13	10	3.8	5.0	.63	.32	0	
25	.15	5.5	2.0	.72	14	9.1	3.5	4.0	.88	.24	0	
26	.42	4.2	2.1	.72	15	8.3	3.4	3.3	.94	.20	0	
27	8.8	3.5	2.2	.72	20	10	4.1	3.2	.76	.18	0	
28	5.1	3.4	1.9	.70	18	14	3.3	3.1	.63	.28	0	
29	3.5	3.7	1.7	.68	------	13	3.0	3.2	.58	.18	0	
30	2.8	3.5	1.7	.64	------	14	3.2	3.2	1.1	.14	0	
31	2.1	------	1.8	.60	------	14	------	3.0	------	.09	0	------
TOTAL	28.14	107.2	84.2	20.89	608.46	691.8	165.6	103.2	44.50	11.46	.99	0
MEAN	.91	3.57	2.72	.67	21.7	22.3	5.52	3.33	1.48	.37	.032	0
MAX	8.8	9.5	3.8	1.8	150	86	11	5.6	2.6	.79	.09	0
MIN	.02	1.3	1.7	.30	.41	5.7	3.0	2.1	.58	.09	0	0
CFSM	.04	.15	.11	.03	.90	.93	.23	.14	.06	.02	.001	0
IN.	.04	.17	.13	.03	.94	1.07	.26	.16	.07	.02	.001	0
AC-FT	56	213	167	41	1,210	1,370	328	205	88	23	2.0	0

CAL YR 1970 TOTAL 1,373.25 MEAN 3.76 MAX 48 MIN .01 CFSM .16 IN 2.13 AC-FT 2,720
WTR YR 1971 TOTAL 1,866.44 MEAN 5.11 MAX 150 MIN 0 CFSM .21 IN 2.89 AC-FT 3,700

PEAK DISCHARGE (BASE, 150 CFS).--Feb. 19 (2045) about 200 cfs (7.86 ft).

05483500 SPRINGBROOK LAKE NEAR GUTHRIE CENTER, IOWA

LOCATION.--Lat 41°46'37", long 94°27'56", in NE1/4 NW1/4 sec.4, T.80 N., R.31 W., Guthrie County, on concrete pedestal near boat dock in Springbrook State Park, near dam across Kings Creek, 0.6 mile upstream from Middle Raccoon River, and 7 miles northeast of Guthrie Center.
DRAINAGE AREA.--5.18 sq mi.
PERIOD OF RECORD.--June 1936 to September 1971 (discontinued).
GAGE.--Nonrecording gage. Datum of gage is 1,085.04 ft above mean sea level and 3.94 ft below crest of spillway of dam forming lake.
EXTREMES.--Current year: Maximum gage height observed, 6.02 ft Feb. 19; minimum observed, 4.02 ft Apr. 6. Period of record: Maximum gage height observed, 7.00 ft July 25, 1942, June 1, 1947; minimum, below staff gage (3.30 ft) Sept. 6, 1960, to Jan. 23, 1961, Apr. 9-21, 1968 when lake was drained.
REMARKS.--Lake is formed by concrete dam with ungated concrete overflow spillway at elevation 1,088.98 ft above mean sea level. Releases controlled by a flume gate. Lake is used for conservation and recreation.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.10	4.10	4.12		4.06		4.12	4.12	4.10	4.12	4.10	4.08
2	4.10	4.10	4.12	4.12	4.04		4.12	4.12	4.10	4.10	4.10	4.08
3	4.10	4.12	4.12	4.12	4.04	4.20	4.10		4.10	4.10	4.10	4.10
4	4.10	4.12	4.12		4.04		4.10	4.14	4.10	4.10	4.10	4.10
5	4.10	4.10	4.12		4.04		4.10	4.15	4.12	4.10	4.10	4.10
6	4.10	4.10	4.12			4.16	4.02	4.16	4.42	4.10	4.10	4.10
7	4.10	4.10	4.12		4.04	4.16	4.04	4.30	4.26	4.12	4.10	4.10
8	4.16	4.10	4.12				4.06	4.16	4.22	4.12	4.10	4.10
9	4.18	4.16	4.12				4.08	4.14	4.18	4.12	4.10	4.10
10	4.16	4.12	4.16	4.12			4.08	4.12	4.18	4.12	4.08	4.10
11	4.12	4.12	4.14			4.32	4.08	4.12	4.16	4.12	4.08	4.10
12	4.10	4.12	4.14			4.36	4.08	4.10	4.16	4.10	4.08	4.10
13	4.10	4.12	4.14		4.06	4.66	4.08	4.10	4.16	4.10	4.08	4.10
14	4.10	4.10	4.12	4.08	4.06	4.36	4.08	4.10	4.16	4.09	4.08	4.10
15	4.10	4.10	4.12			4.30	4.08	4.10	4.16	4.08	4.08	4.10
16	4.10	4.10	4.13	4.12		4.18	4.08	4.10	4.14	4.08	4.08	4.10
17	4.10	4.10	4.13	4.12		4.16	4.08	4.40	4.14	4.08	4.08	4.10
18	4.10	4.10	4.12		5.12	4.16	4.08	4.36	4.14	4.08	4.08	4.10
19	4.10	4.16	4.12		6.02	4.14	4.08	4.28	4.14	4.08	4.10	4.10
20	4.10	4.14	4.12		5.58	4.14	4.12	4.20	4.12	4.08	4.10	4.10
21	4.10	4.12			4.42	4.12	4.10	4.18	4.12	4.08	4.10	4.11
22	4.14	4.12			4.24	4.12	4.10	4.16	4.12	4.10	4.08	4.10
23	4.14	4.14			4.20	4.12	4.08	4.14	4.11	4.10	4.08	4.10
24	4.12	4.16			4.17	4.10	4.08	4.14	4.11	4.10	4.08	4.10
25	4.12	4.16			4.20	4.10	4.16	4.12	4.12	4.10	4.08	4.14
26	4.10	4.16	4.12		4.18	4.10	4.09	4.12	4.12	4.10	4.08	
27	4.15	4.14			4.28	4.10	4.08	4.10	4.10	4.10	4.08	
28	4.14	4.14		4.06	4.30	4.12	4.10	4.10	4.11	4.10	4.08	
29	4.12	4.12			------	4.12	4.10	4.10	4.12	4.10	4.08	
30	4.10	4.12			------	4.14	4.10	4.10	4.14	4.08	4.08	
31	4.10	------	4.12	4.06	------	4.14	------	4.10	------	4.10	4.08	------

05483600 MIDDLE RACCOON RIVER AT PANORA, IOWA

LOCATION.--Lat 41°41'14", long 94°22'15", in NE1/4 NW1/4 sec.5, T.79 N., R.30 W., Guthrie County, on left bank 15 ft downstream from bridge on county highway, 0.2 mile southwest of Panora, 1.5 miles upstream from Andy's Branch, and 1.7 miles downstream from Lake Panorama.
DRAINAGE AREA.--440 sq mi.
PERIOD OF RECORD.--June 1958 to current year.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 991.20 ft above mean sea level.
AVERAGE DISCHARGE.--13 years, 178 cfs (5.49 inches per year, 129,000 acre-ft per year); median of yearly mean discharges, 160 cfs (4.9 inches per year, 116,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 8,900 cfs Feb. 19 (gage height, 12.98 ft (from floodmark, backwater from ice); minimum daily, 4.3 cfs Jan. 5 (result of operation of dam at Lake Panorama).
Period of record: Maximum discharge, 9,150 cfs July 2, 1958 (gage height, 11.87 ft), from rating curve extended above 5,200 cfs; maximum gage height, 12.98 ft Feb. 19, 1971 (from floodmark, backwater from ice); minimum daily discharge, 1.0 cfs June 19, 1969 (result of construction of dam at Lake Panorama); minimum daily discharge excluding construction period and operation of Lake Panorama, 10 cfs Jan. 7-13, 1968.
Flood of June 10, 1953, reached a stage of 14.3 ft, from floodmark (discharge, about 14,000 cfs).
REMARKS.--Records good except those for winter periods, which are poor. City of Panora diverts approximately 100 acre-ft per year above station. Flow regulated by dam on Lake Panorama since August 1970. Records of periodic chemical and suspended-sediment analyses for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Stage-discharge relation affected by ice Nov. 23, 24, Dec. 6, 7, Dec. 20 to Feb. 20).

Oct. 1 to Feb. 19		Feb. 20 to Sept. 30			
3.7	5.5	3.7	7.3	4.6	170
3.8	10	3.8	13	5.0	375
3.9	17	3.9	21	6.0	1,190
4.0	26	4.1	44	8.0	3,140
4.1	39	4.3	80	10.0	5,600

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	13	7.0	6.9	6.8	626	277	43	120	27	23	22
2	21	13	7.9	6.9	6.7	538	146	50	76	31	23	21
3	22	14	7.8	5.5	6.6	369	46	50	46	34	24	21
4	23	14	7.8	4.8	6.4	305	72	50	57	36	24	23
5	22	15	7.7	4.3	6.3	362	66	58	70	37	22	22
6	22	15	6.2	5.5	6.3	343	43	64	1,830	37	21	22
7	22	16	7.5	6.4	6.2	251	34	482	634	37	21	22
8	38	18	9.2	7.1	6.2	186	27	546	37	45	21	22
9	29	19	8.3	7.4	6.1	174	26	29	90	208	21	22
10	23	14	8.1	7.5	6.1	554	25	37	132	234	21	22
11	22	16	8.1	7.6	6.2	658	25	111	123	145	21	22
12	20	16	8.4	7.5	6.2	1,130	25	153	93	25	22	22
13	17	16	7.9	7.4	6.2	2,220	24	70	76	23	21	22
14	17	16	7.5	7.4	6.2	3,450	24	78	210	22	25	22
15	17	16	8.1	7.4	9.4	2,120	24	83	178	22	23	22
16	18	16	8.4	7.2	13	458	24	78	88	22	21	21
17	18	18	8.4	7.1	19	50	24	215	29	22	22	21
18	16	17	8.4	7.1	340	50	24	658	29	21	22	21
19	17	13	7.7	7.0	4,000	72	24	876	33	21	23	21
20	18	10	7.4	6.9	6,500	114	25	538	38	21	23	21
21	17	8.9	7.2	7.3	4,580	194	25	66	38	21	24	20
22	21	8.8	7.1	7.6	2,500	362	24	129	43	22	23	16
23	18	8.4	7.0	7.8	1,500	390	23	167	44	23	23	12
24	17	7.0	7.1	7.7	1,060	405	23	194	44	21	23	12
25	18	7.7	7.1	7.5	810	458	23	198	47	20	23	13
26	27	7.8	7.1	7.4	714	277	23	156	114	20	22	12
27	19	7.6	7.1	7.2	698	224	26	98	153	22	21	12
28	13	7.4	7.1	7.1	634	261	27	108	103	22	21	14
29	13	7.2	7.0	7.0	------	398	29	146	64	23	21	20
30	13	7.1	7.0	7.0	------	330	37	129	29	23	21	31
31	13	------	7.0	6.9	------	288	------	123	------	23	21	------
TOTAL	613	382.9	235.6	215.4	23,465.9	17,617	1,265	5,783	4,668	1,310	687	596
MEAN	19.8	12.8	7.60	6.95	838	568	42.2	187	156	42.3	22.2	19.9
MAX	38	19	9.2	7.8	6,500	3,450	277	876	1,830	234	25	31
MIN	13	7.0	6.2	4.3	6.1	50	23	29	29	20	21	12
CFSM	.05	.03	.02	.02	1.90	1.29	.10	.43	.35	.10	.05	.05
IN.	.05	.03	.02	.02	1.98	1.49	.11	.49	.39	.11	.06	.05
AC-FT	1,220	759	467	427	46,540	34,940	2,510	11,470	9,260	2,600	1,360	1,180

CAL YR 1970 TOTAL 27,869.4 MEAN 76.4 MAX 2,360 MIN 5.8 CFSM .17 IN 2.36 AC-FT 55,280
WTR YR 1971 TOTAL 56,838.8 MEAN 156 MAX 6,500 MIN 4.3 CFSM .35 IN 4.81 AC-FT 112,700

05484000 SOUTH RACCOON RIVER AT REDFIELD, IOWA

LOCATION.--Lat 41°34'48", long 94°10'58", in SW1/4 SW1/4 sec.3, T.78 N., R.29 W., Dallas County, on left bank 10 ft downstream from bridge on county highway at Redfield, 0.8 mile downstream from bridge on U.S. Highway 6, 1.0 mile downstream from Middle Raccoon River, and 15.6 miles upstream from mouth.
DRAINAGE AREA.--988 sq mi.
PERIOD OF RECORD.--March 1940 to current year.
GAGE.--Water-stage recorder. Datum of gage is 896.43 ft above mean sea level. Prior to June 12, 1946, non-recording gage, and June 12, 1946, to Sept. 30, 1966, water-stage recorder at site 20 ft upstream at same datum.
AVERAGE DISCHARGE.--31 years, 410 cfs (5.64 inches per year, 297,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 17,800 cfs Feb. 19 (gage height, 20.82 ft); minimum daily, 26 cfs Feb. 8-10.
Period of record: Maximum discharge, 35,000 cfs July 2, 1958 (gage height, 29.04 ft, from floodmark); minimum daily, 19 cfs July 27, 1940, Nov. 30, 1955.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--Three discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1940.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used June 7; stage-discharge relation affected by ice Nov. 23-29, Dec. 5 to Feb. 18, Feb. 27 to Mar. 1, Mar. 8).

2.6	30	10.0	4,610
2.8	66	14.0	8,500
3.0	120	16.0	10,800
4.0	520	19.0	15,000
6.0	1,630		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	81	129	69	31	1,060	562	130	281	182	74	58
2	48	77	110	67	30	931	446	134	261	145	120	58
3	47	79	92	66	29	697	242	135	183	126	99	56
4	44	83	82	61	28	649	230	133	180	128	93	58
5	48	77	78	53	28	818	245	156	190	135	90	67
6	49	75	66	43	27	723	205	171	8,870	133	85	53
7	51	72	80	36	27	526	198	1,170	2,400	129	79	48
8	211	80	89	44	26	390	179	1,820	826	137	79	47
9	378	529	90	47	26	413	166	541	611	246	77	48
10	243	220	89	50	26	556	154	392	599	403	41	47
11	143	163	87	50	27	1,280	147	389	486	361	58	46
12	104	147	84	50	27	2,210	145	446	422	209	62	45
13	84	131	82	49	29	4,180	144	294	328	123	60	46
14	74	122	80	48	30	6,670	135	280	386	105	58	45
15	67	106	80	45	32	3,680	134	262	413	100	77	44
16	64	100	86	40	35	1,330	135	243	353	94	66	44
17	62	111	85	36	52	626	137	266	216	91	66	43
18	62	107	84	33	4,000	671	138	1,820	192	88	66	44
19	63	134	82	33	14,800	537	134	2,160	188	86	70	48
20	65	262	75	33	14,000	445	141	1,400	202	81	69	51
21	68	187	80	33	5,750	583	255	604	178	78	69	50
22	196	144	84	33	3,060	609	218	502	172	78	69	46
23	150	100	85	34	1,820	655	147	502	168	103	67	48
24	135	110	84	35	1,350	497	134	537	157	94	66	37
25	98	122	82	36	1,130	654	125	500	151	81	65	43
26	93	136	80	35	1,170	489	120	428	152	76	60	48
27	294	140	77	35	1,210	424	176	360	261	74	60	51
28	185	134	75	34	1,180	644	164	270	211	74	60	49
29	112	124	74	33	------	712	137	322	177	78	58	46
30	97	117	72	32	------	615	130	300	211	78	58	48
31	86	------	70	31	------	591	------	278	------	74	58	------
TOTAL	3,470	4,070	2,593	1,324	49,980	34,865	5,623	16,945	19,425	3,990	2,179	1,462
MEAN	112	136	83.6	42.7	1,785	1,125	187	547	648	129	70.3	48.7
MAX	378	529	129	69	14,800	6,670	562	2,160	8,870	403	120	67
MIN	44	72	66	31	26	390	120	130	151	74	41	37
CFSM	.11	.14	.08	.04	1.81	1.14	.19	.55	.66	.13	.07	.05
IN.	.13	.15	.10	.05	1.88	1.31	.21	.64	.73	.15	.08	.06
AC-FT	6,880	8,070	5,140	2,630	99,140	69,150	11,150	33,610	38,530	7,910	4,320	2,900

CAL YR 1970 TOTAL 78,843 MEAN 216 MAX 7,480 MIN 41 CFSM .22 IN 2 97 AC-FT 156,400
WTR YR 1971 TOTAL 145,926 MEAN 400 MAX 14,800 MIN 26 CFSM .40 IN 5.49 AC-FT 289,400

PEAK DISCHARGE (BASE, 5,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	2345	20.82	17,800	6-6	1745	17.25	12,500
3-14	0700	14.61	9,200				

05484500 RACCOON RIVER AT VAN METER, IOWA

LOCATION.--Lat 41°32'02", long 93°56'59", in SW1/4SW1/4 sec.22, T.78 N., R.27 W., Dallas County, on right bank 100 ft downstream from bridge on county highway R16, 0.3 mile northeast of Van Meter, 0.7 mile upstream from small left bank tributary, 1.2 miles downstream from confluence of North and South Raccoon River, and 30 miles upstream from mouth.
DRAINAGE AREA.--3,441 sq mi.
PERIOD OF RECORD.--April 1915 to current year. Prior to October 1934, monthly discharge only, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 841.16 ft above mean sea level. See WSP 1308 for history of changes prior to Aug. 8, 1934.
AVERAGE DISCHARGE.--56 years, 1,214 cfs (4.79 inches per year, 879,500 acre-ft per year); median of yearly mean discharges, 1,080 cfs (4.3 inches per year, 782,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 23,000 cfs Feb. 20 (gage height, 18.85 ft, backwater from ice); minimum daily, 81 cfs Sept. 16.
Period of record: Maximum discharge, 41,200 cfs June 13, 1947 (gage height, 21.37 ft, from floodmark); maximum gage height, 21.77 ft July 3, 1958; minimum daily discharge, 10 cfs Jan. 22-31, 1940.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for current year are published in Part 2 of this report.
COOPERATION.--Two discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1308: 1927 (M). WSP 1438: Drainage area. WSP 1508: 1915 (M), 1916-17, 1918-23 (M), 1925 (M), 1926, 1933 (M), 1939 (M), 1947 (M), 1949 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Stage-discharge relation affected by ice Nov. 24, 25, Dec. 6-8, Dec. 12 to Feb. 22).

2.3	64	6.0	2,940
2.4	98	10.0	7,800
2.8	288	13.0	12,500
4.0	1,120	18.0	23,800

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	115	403	828	410	120	5,210	4,860	710	1,070	639	233	91
2	112	386	743	400	120	4,180	4,110	697	1,010	587	320	90
3	105	377	675	390	120	3,310	3,300	669	901	522	290	87
4	101	374	605	280	110	2,920	2,660	655	827	572	234	127
5	101	365	556	210	110	3,250	2,260	684	842	584	212	154
6	103	359	340	180	110	3,030	1,960	690	10,200	535	197	129
7	105	357	290	155	110	2,520	1,750	1,230	5,430	522	188	108
8	179	375	330	160	100	2,010	1,610	3,020	2,020	849	179	101
9	675	1,040	462	160	100	1,950	1,500	1,480	1,750	1,140	174	100
10	550	764	486	160	100	2,000	1,400	1,030	2,830	1,260	160	97
11	418	622	338	160	100	3,610	1,330	987	3,350	1,120	128	93
12	577	608	310	160	110	5,590	1,260	977	3,530	886	144	94
13	727	627	280	160	120	9,580	1,180	834	3,360	693	143	92
14	678	620	260	155	120	14,200	1,130	758	2,810	910	138	88
15	595	591	250	150	130	11,800	1,070	713	2,430	906	140	84
16	526	564	300	140	130	9,720	1,030	672	1,990	748	131	81
17	469	546	450	140	140	9,090	1,000	642	1,590	637	126	84
18	431	537	450	130	5,000	8,390	969	1,960	1,360	556	122	84
19	399	551	300	130	14,000	5,770	945	4,500	1,210	489	127	93
20	372	842	290	130	22,000	4,210	925	3,140	1,090	438	125	94
21	352	786	330	130	14,000	3,720	975	2,010	983	394	132	91
22	493	787	380	140	13,000	3,760	1,030	1,540	883	378	127	88
23	549	556	400	140	11,300	3,650	890	1,530	822	1,240	117	92
24	482	480	420	140	8,260	3,170	822	1,670	751	417	117	85
25	408	450	450	140	5,750	2,910	781	1,530	694	330	120	92
26	393	559	440	140	5,570	2,610	745	1,350	656	292	110	100
27	633	645	450	140	6,160	2,270	850	1,370	687	271	103	102
28	611	771	440	140	5,790	2,340	814	1,470	653	270	99	98
29	494	800	430	130	------	2,830	746	1,320	578	262	97	92
30	461	766	420	130	------	4,500	717	1,190	653	245	95	95
31	423	------	410	130	------	5,200	------	1,100	------	253	93	------
TOTAL	12,637	17,508	13,113	5,460	112,780	149,300	44,619	42,128	56,960	18,945	4,721	2,906
MEAN	408	584	423	176	4,028	4,816	1,487	1,359	1,899	611	152	96.9
MAX	727	1,040	828	410	22,000	14,200	4,860	4,500	10,200	1,260	320	154
MIN	101	357	250	130	100	1,950	717	642	578	245	93	81
CFSM	.12	.17	.12	.05	1.17	1.40	.43	.39	.55	.18	.04	.03
IN.	.14	.19	.14	.06	1.22	1.61	.48	.46	.62	.20	.05	.03
AC-FT	25,070	34,730	26,010	10,830	223,700	296,100	88,500	83,560	113,000	37,580	9,360	5,760

CAL YR 1970 TOTAL 301,389 MEAN 826 MAX 12,800 MIN 101 CFSM .24 IN 3.26 AC-FT 597,800
WTR YR 1971 TOTAL 481,077 MEAN 1,318 MAX 22,000 MIN 81 CFSM .38 IN 5.20 AC-FT 954,200

PEAK DISCHARGE (BASE, 8,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-20	1430	18.85	23,000*	6-6	1730	13.44	13,300
3-14	1230	14.55	15,400				

* about

05485500 DES MOINES RIVER BELOW RACCOON RIVER AT DES MOINES, IOWA

LOCATION.--Lat 41°34'30", long 93°35'48", in NE1/4 SE1/4 sec.10, T.78 N., R.24 W., Polk County, on right bank 10 ft downstream from bridge on Southeast 14th Street at Oes Moines, 0.8 mile downstream from Raccoon River and Scott Street Dam, and at mile 200.7.
DRAINAGE AREA.--9,879 sq mi.
PERIOD OF RECORD.--April 1940 to current year.
GAGE.--Water-stage recorder. Datum of gage is 762.52 ft above mean sea level. Prior to Oct. 1, 1951, and Oct. 1, 1953, to Sept. 30, 1959, water-stage recorder above Scott Street Dam, 0.8 mile upstream at datum 11.16 ft higher. Oct. 1, 1951, to Sept. 30, 1953, and Oct. 1, 1959 to Sept. 30, 1961, nonrecording gage at present site and datum.
AVERAGE DISCHARGE.--31 years, 3,800 cfs (5.22 inches per year, 2,753,000 acre-ft per year); median of yearly mean discharges, 3,420 cfs (4.7 inches per year, 2,480,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 27,300 cfs Feb. 21 (gage height, 22.76 ft); minimum daily, 72 cfs Aug. 28.
Period of record: Maximum discharge, 77,000 cfs June 26, 1947 (gage height, 20.8 ft in gage well, 21.6 ft from outside floodmark, site and datum then in use); minimum daily, 55 cfs Oct. 19, 1956. Maximum stage since at least 1893, that of June 26, 1947, site and datum then in use. Flood of May 31, 1903, reached a stage of 20.9 ft (from flood profile) at Scott Street site and datum, by office of Des Moines City Engineer.
REMARKS.--Records good except those for winter periods, which are poor. Des Moines municipal water supply is taken from infiltration galleries on Raccoon River, 3.5 miles above station. Average daily pumpage was about 50 cfs. At times, water is pumped from Raccoon River into recharge basins, or into Waterworks Reservoir (capacity, 4,800 acre-ft). Effluent from sewage treatment plant enters the river 2.3 miles below station. Net effect of diversions not known. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Ten discharge measurements furnished by Corps of Engineers. Average monthly pumpage from galleries furnished by Des Moines Water Works.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1943 (P).

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Mar. 3 to Apr. 27, July 22 to Aug. 9, Sept. 12-30; stage-discharge relation affected by ice Dec. 5-7, 17-19, Dec. 26 to Feb. 20).

Oct. 1 to July 7				July 8 to Sept. 30			
6.8	324	12.0	5,340	6.9	40	9.0	1,710
7.5	620	15.0	10,200	7.0	86	10.0	2,830
8.5	1,340	20.0	20,000	7.1	145	12.0	5,340
10.0	2,830	23.0	28,000	8.0	790	15.0	10,200

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	401	1,230	2,630	920	500	11,400	18,300	3,550	3,330	3,360	1,460	306
2	388	961	2,510	950	490	9,820	18,100	3,390	3,230	4,580	1,370	343
3	373	1,130	2,250	880	480	8,450	17,600	3,300	3,140	4,600	1,350	320
4	360	1,110	2,120	700	470	7,420	16,600	3,210	3,240	4,140	1,240	410
5	344	1,080	2,000	650	460	7,470	15,000	3,150	3,520	3,990	1,120	481
6	347	1,080	1,600	600	450	7,330	13,600	3,110	8,450	5,560	1,010	397
7	347	1,090	1,200	640	430	6,590	12,500	3,350	10,900	8,760	943	341
8	606	1,130	1,070	680	410	5,630	11,400	4,790	5,870	9,710	885	320
9	1,130	1,540	1,330	700	380	5,300	10,100	4,380	7,450	8,790	818	285
10	1,500	1,950	1,620	690	390	5,210	9,300	3,450	10,100	7,460	681	285
11	1,270	1,740	1,250	670	400	6,050	8,650	3,170	11,600	6,300	717	285
12	1,220	1,700	1,060	640	410	8,650	8,050	3,030	11,600	5,920	695	271
13	1,460	1,760	1,030	610	410	12,500	7,570	2,990	11,100	5,390	666	243
14	1,550	1,950	945	580	420	18,800	7,120	2,730	9,880	4,670	620	222
15	1,500	2,110	862	570	430	23,800	6,650	2,610	8,430	4,370	605	201
16	1,400	2,130	1,040	560	430	23,800	6,320	2,500	7,660	3,880	548	215
17	1,280	2,100	1,250	550	580	23,000	6,020	2,390	6,720	3,530	485	229
18	1,220	2,080	1,350	540	1,500	22,600	5,750	2,870	5,980	3,220	477	222
19	1,140	2,130	1,250	530	11,000	19,900	5,480	7,390	5,330	2,910	494	257
20	1,060	2,310	900	540	22,000	18,300	5,210	6,430	4,890	2,640	471	250
21	1,010	2,690	1,010	550	26,900	16,400	5,020	5,030	4,580	2,380	473	236
22	1,400	2,720	814	570	22,200	16,000	4,890	4,090	4,390	2,200	471	208
23	1,360	2,150	1,010	590	19,400	16,400	4,670	3,980	4,200	2,550	422	222
24	1,300	1,410	963	620	16,700	15,200	4,410	4,350	3,980	2,500	370	239
25	1,210	1,320	1,020	600	12,800	13,000	4,180	4,300	3,730	2,280	364	263
26	1,080	1,350	1,150	580	11,600	11,800	4,010	4,040	3,520	2,330	380	279
27	1,290	1,480	1,160	560	13,000	10,900	4,110	4,110	3,320	2,080	553	278
28	1,560	2,070	1,150	550	12,000	10,500	3,980	4,100	3,240	1,830	72	262
29	1,470	2,440	1,080	540	------	12,300	3,790	3,970	3,000	1,760	337	237
30	1,740	2,810	1,000	530	------	15,500	3,620	3,740	2,970	1,670	343	279
31	1,310	------	950	520	------	17,700	------	3,500	------	1,550	314	------
TOTAL	33,626	52,751	40,574	19,410	176,640	407,720	252,000	117,000	179,350	126,910	20,754	8,386
MEAN	1,085	1,758	1,309	626	6,309	13,150	8,400	3,774	5,978	4,094	669	280
MAX	1,740	2,810	2,630	950	26,900	23,800	18,300	7,390	11,600	9,710	1,460	481
MIN	344	961	814	520	380	5,210	3,620	2,390	2,970	1,550	72	201
CFSM	.11	.18	.13	.06	.64	1.33	.85	.38	.61	.41	.07	.03
IN.	.13	.20	.15	.07	.67	1.54	.95	.44	.68	.48	.08	.03
AC-FT	66,700	104,600	80,480	38,500	350,400	808,700	499,800	232,100	355,700	251,700	41,170	16,630

CAL YR 1970 TOTAL 853,641 MEAN 2,339 MAX 22,500 MIN 344 CFSM .24 IN 3.21 AC-FT 1,693,000
WTR YR 1971 TOTAL 1,435,121 MEAN 3,932 MAX 26,900 MIN 72 CFSM .40 IN 5.40 AC-FT 2,847,000

PEAK DISCHARGE (BASE, 15,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-21	1230	22.76	27,300	4-1	0900	18.99	18,300
3-15	0930	21.51	24,400				

05486000 NORTH RIVER NEAR NORWALK, IOWA

LOCATION.--Lat 41°27'25", long 93°39'10", in NW1/4 SW1/4 sec.20, T.77 N., R.24 W., Warren County, on left bank 10 ft downstream from bridge on county highway R57, 1.7 miles southeast of Norwalk, 5.2 miles upstream from Middle Creek, and 6.2 miles downstream from Badger Creek.
DRAINAGE AREA.--349 sq mi.
PERIOD OF RECORD.--February 1940 to current year.
GAGE.--Water-stage recorder. Datum of gage is 788.45 ft above mean sea level (levels by Corps of Engineers). Prior to June 12, 1946, nonrecording gage at same site and datum. Jan. 7 to Oct. 11, 1960, nonrecording gage at site 2.1 miles upstream at different datum.
AVERAGE DISCHARGE.--31 years, 159 cfs (6.19 inches per year, 115,200 acre-ft per year); median of yearly mean discharges, 110 cfs (4.3 inches per year, 79,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,200 cfs Feb. 21 (gage height, 22.40 ft, backwater from ice); minimum daily, 0.40 cfs Sept. 30.
Period of record: Maximum discharge, 32,000 cfs June 13, 1947 (gage height, 25.3 ft, from floodmark), from rating curve extended above 9,100 cfs on basis of velocity-area studies; no flow at time during period 1954-58.
REMARKS.--Records good except those for winter periods, which are poor.
COOPERATION.--One discharge measurement furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1946.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	159	160	50	44	1,400	161	84	180	71	8.7	1.5
2	28	139	153	52	42	800	152	77	167	78	8.4	1.5
3	24	131	135	53	40	450	131	73	150	59	9.2	1.5
4	21	127	120	54	42	350	105	68	139	44	11	2.4
5	20	122	99	48	43	400	97	65	130	42	9.7	4.5
6	21	113	80	37	39	480	94	69	295	42	8.6	2.4
7	21	105	65	30	36	380	91	137	681	41	9.3	2.0
8	42	99	113	32	34	300	89	795	425	38	11	2.3
9	346	405	111	34	35	250	85	881	256	38	11	2.9
10	366	1,290	109	35	36	280	69	399	212	60	8.6	2.7
11	215	596	115	36	37	511	72	305	189	75	7.4	2.3
12	126	328	110	37	38	1,140	72	275	172	86	6.6	1.8
13	90	272	100	38	39	1,540	68	227	147	76	5.8	1.5
14	73	235	110	38	40	1,550	67	198	136	48	5.2	1.4
15	64	206	125	37	41	1,680	69	178	156	36	4.8	1.1
16	55	183	128	37	42	980	63	157	160	30	4.4	1.0
17	50	176	134	36	43	395	68	141	118	26	3.8	.84
18	48	170	145	36	240	351	65	138	103	24	3.6	.87
19	46	169	155	35	1,000	368	64	434	95	21	3.7	.88
20	45	267	120	34	1,500	319	63	767	93	18	3.4	.94
21	45	386	150	38	2,100	270	65	380	78	17	3.1	.79
22	312	286	120	43	1,700	294	85	286	68	16	2.8	.68
23	676	180	90	48	1,400	240	102	276	63	28	3.6	.72
24	497	125	74	51	800	191	77	751	66	70	2.8	.67
25	342	185	64	53	400	174	67	882	58	49	2.5	.72
26	240	175	59	54	580	170	56	407	52	22	2.5	.69
27	269	169	57	53	1,000	166	77	305	48	16	2.3	.66
28	426	153	53	52	1,200	164	122	256	43	13	2.2	.56
29	290	147	50	50	------	188	137	228	38	12	2.0	.48
30	222	151	45	48	------	193	111	209	51	11	1.9	.40
31	184	------	48	46	------	168	------	193	------	9.4	1.8	------
TOTAL	5,235	7,249	3,196	1,325	12,591	16,142	2,644	9,641	4,569	1,216.4	171.7	42.70
MEAN	169	242	103	42.7	450	521	88.1	311	152	39.2	5.54	1.42
MAX	676	1,290	160	54	2,100	1,680	161	882	681	86	11	4.5
MIN	20	99	45	30	34	164	56	65	38	9.4	1.8	.40
CFSM	.48	.69	.30	.12	1.29	1.49	.25	.89	.44	.11	.02	.004
IN.	.56	.77	.34	.14	1.34	1.72	.28	1.03	.49	.13	.02	.004
AC-FT	10,380	14,380	6,340	2,630	24,970	32,020	5,240	19,120	9,060	2,410	341	85

CAL YR 1970 TOTAL 54,175.90 MEAN 148 MAX 4,750 MIN 3.2 CFSM .42 IN 5.77 AC-FT 107,500
WTR YR 1971 TOTAL 64,022.80 MEAN 175 MAX 2,100 MIN .40 CFSM .50 IN 6.82 AC-FT 127,000

PEAK DISCHARGE (BASE, 1,700 CFS).--Feb. 21 (time unknown) about 2,200 cfs; Mar. 15 (2015) 1,730 cfs (19.97 ft).

05486490 MIDDLE RIVER NEAR INDIANOLA, IOWA

LOCATION.--Lat 41°25'27", long 93°35'09", in SW1/4 SE1/4 sec.35, T.77 N., R.24 W., Warren County, on right bank 10 ft downstream from bridge on county highway, 0.4 mile upstream from Cavitt Creek, 1.6 miles upstream from bridge on U.S. Highway 69, and 4.6 miles northwest of Indianola.
DRAINAGE AREA.--503 sq mi.
PERIOD OF RECORD.--March 1940 to current year.
GAGE.--Water-stage recorder. Datum of gage is 776.15 ft above mean sea level (Corps of Engineers bench mark). Prior to June 11, 1946, June 9, 1947, to Nov. 23, 1948, and Sept. 8, 1951, to Oct. 30, 1952, nonrecording gage and June 11, 1946, to June 8, 1947 (destroyed by flood), Nov. 24, 1948, to Sept. 7, 1951, Sept. 1, 1952, to Sept. 30, 1962, water-stage recorder at site 1.6 miles downstream at datum 2.81 ft lower.
AVERAGE DISCHARGE.--31 years, 232 cfs (6.26 inches per year, 168,100 acre-ft per year); median of yearly mean discharges, 190 cfs (5.1 inches per year, 138,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,800 cfs May 24 (gage height, 16.40 ft); maximum gage height, 18.62 ft Feb. 19 (backwater from ice); minimum daily discharge, 4.4 cfs Sept. 23, 29, 30.
Period of record: Maximum discharge, 34,000 cfs June 13, 1947 (gage heights: 26.40 ft, from floodmark, former site and datum; 28.27 ft, from floodmark, present site and datum); minimum daily, 0.66 cfs Oct. 4, 1968.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--One discharge measurement furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1940 (M), 1941, 1944, 1946, 1949 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 29 to Nov. 8, May 26 to June 5, Sept. 29,30; stage-discharge relation affected by ice Nov. 23-27, Dec. 5-7, 13-15, Dec. 20 to Mar. 12).

4.7	3.0	6.0	125
4.8	6.0	7.0	347
5.0	16	9.0	960
5.2	28	13.0	2,780
5.5	57	16.0	4,560

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	119	147	91	34	900	217	96	168	63	33	9.8
2	36	110	139	92	33	700	203	92	149	69	37	8.5
3	32	107	120	90	33	390	173	87	131	66	47	7.4
4	29	108	110	87	32	360	141	82	117	56	38	13
5	29	105	90	76	32	520	131	77	114	50	31	26
6	27	100	72	60	31	450	125	81	353	44	45	18
7	27	99	70	50	31	350	119	219	617	46	47	15
8	54	93	92	52	30	240	115	1,020	689	46	37	12
9	803	1,540	93	53	31	240	107	899	293	53	29	10
10	588	2,120	93	54	32	260	100	651	210	71	25	9.8
11	227	577	122	52	32	700	98	465	183	75	22	9.4
12	163	379	128	49	32	1,400	99	352	164	65	20	8.0
13	117	304	88	46	33	1,810	95	285	195	76	22	7.6
14	91	247	72	44	33	3,160	84	241	163	63	19	7.6
15	77	214	85	42	34	2,370	81	206	174	54	17	6.8
16	68	189	135	41	34	1,020	77	176	168	48	14	7.2
17	62	177	179	40	35	598	81	154	119	44	14	6.8
18	57	167	235	39	800	524	90	149	104	41	13	8.0
19	54	169	195	38	4,000	535	88	582	96	38	13	8.5
20	51	426	100	39	4,500	458	84	736	91	35	13	7.3
21	49	409	220	40	3,500	376	101	379	84	33	13	5.4
22	624	256	230	41	1,000	381	153	256	79	33	12	5.0
23	576	160	150	42	350	320	114	239	77	77	12	4.4
24	596	250	120	43	310	263	95	3,810	72	64	11	5.0
25	309	230	130	40	300	233	77	1,250	67	37	11	6.0
26	200	190	110	38	1,500	225	71	543	63	34	11	6.5
27	211	160	100	37	2,500	220	130	383	58	31	11	5.0
28	308	150	90	36	1,200	218	255	295	53	31	11	5.4
29	208	143	88	35	------	236	139	244	50	30	11	4.4
30	172	145	87	35	------	275	113	212	70	31	11	4.4
31	138	------	89	34	------	235	------	188	------	31	11	------
TOTAL	6,023	9,443	3,779	1,556	20,512	19,967	3,556	14,449	4,971	1,535	661	258.2
MEAN	194	315	122	50.2	733	644	119	466	166	49.5	21.3	8.61
MAX	803	2,120	235	92	4,500	3,160	255	3,810	689	77	47	26
MIN	27	93	70	34	30	218	71	77	50	30	11	4.4
CFSM	.39	.63	.24	.10	1.46	1.28	.24	.93	.33	.10	.04	.02
IN.	.45	.70	.28	.12	1.52	1.48	.26	1.07	.37	.11	.05	.02
AC-FT	11,950	18,730	7,500	3,090	40,690	39,600	7,050	28,660	9,860	3,040	1,310	512

CAL YR 1970 TOTAL 67,710.0 MEAN 186 MAX 6,100 MIN 11 CFSM .37 IN 5.01 AC-FT 134,300
WTR YR 1971 TOTAL 86,710.2 MEAN 238 MAX 4,500 MIN 4.4 CFSM .47 IN 6.41 AC-FT 172,000

PEAK DISCHARGE (BASE, 4,500 CFS).--Feb. 19 (time unknown) about 4,600 cfs; May 24 (1515) 4,800 cfs (16.40 ft).

05487000 LAKE AHQUABI NEAR INDIANOLA, IOWA

LOCATION.--Lat 41°17'37", long 93°35'36", in SW1/4 SW1/4 sec.14, T.75 N., R.24 W., Warren County, about 500 ft southeast of dam on unnamed creek in Lake Ahquabi State Park, and 5.0 miles southwest of county court house at Indianola.
DRAINAGE AREA.--4.93 sq mi.
PERIOD OF RECORD.--June 1936 to September 1971 (discontinued).
GAGE.--Water-stage recorder. Datum of gage is 862.77 ft above mean sea level (Iowa State Highway Commission bench mark) and 6.66 ft below crest of spillway of dam forming lake. Prior to June 26, 1952, nonrecording gage 0.5 mile southeast at same datum.
EXTREMES.--Current year: Maximum gage height, 7.45 ft Oct. 9, 22; minimum, 5.80 ft Sept. 24.
Period of record: Maximum gage height observed, 9.95 ft June 5, 1947; minimum, lake drained Sept. 18, 1965 to June 6, 1966.
REMARKS.--Lake is formed by earthfill dam with ungated concrete spillway at elevation 6.66 ft, gage datum. Releases controlled by flume gage. Lake is used for conservation and recreation. Area of lake at spillway elevation is 130 acres.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.65	6.66	6.65	6.61	6.60	6.67	6.61	6.62			6.18	5.91
2	6.65	6.66	6.65	6.61	6.59	6.64	6.60	6.61			6.18	5.90
3	6.63	6.66	6.65	6.67	6.59	6.64	6.60	6.61			6.26	5.88
4	6.60	6.66	6.63	6.66	6.61	6.65	6.60	6.60			6.27	5.92
5	6.60	6.66	6.62	6.64	6.63	6.67	6.60	6.62			6.26	6.03
6	6.60	6.66	6.62	6.63	6.62	6.65	6.60	6.62		6.44	6.25	6.02
7	6.60	6.66	6.61	6.62	6.60	6.63	6.60	6.63		6.44	6.25	6.01
8	6.74	6.67	6.60	6.62	6.60	6.63	6.58	6.64		6.43	6.24	6.00
9	7.29	6.70	6.61	6.62	6.60	6.62	6.58	6.63		6.46	6.23	5.98
10	6.88	6.71	6.65	6.62	6.59	6.64	6.57	6.63		6.48	6.22	5.98
11	6.74	6.70	6.69	6.62	6.59	6.72	6.56	6.62		6.48	6.20	5.96
12	6.70	6.69	6.67	6.62	6.59	6.77	6.57	6.61		6.47	6.18	5.95
13	6.68	6.69	6.65	6.62	6.59	6.78	6.56	6.60		6.46	6.17	5.93
14	6.67	6.68	6.65	6.62	6.60	6.82	6.55	6.60		6.45	6.16	5.91
15	6.65	6.67	6.64	6.61	6.59	6.75	6.55	6.61		6.44	6.15	5.89
16	6.65	6.67	6.67	6.61	6.59	6.68	6.55	6.60		6.42	6.13	5.87
17	6.65	6.67	6.68	6.61	6.59	6.65	6.58	6.59		6.40	6.12	5.85
18	6.64	6.67	6.69	6.61	6.78	6.65	6.58	6.67		6.40	6.11	5.85
19	6.64	6.69	6.67	6.61	7.08	6.65	6.59	6.73		6.36	6.10	5.85
20	6.65	6.73	6.65	6.61	6.92	6.64	6.60	6.68		6.34	6.09	5.85
21	6.65	6.70	6.64	6.60	6.70	6.63	6.60	6.66		6.34	6.08	5.84
22	7.13	6.67	6.63	6.60	6.67	6.63	6.59	6.64		6.33	6.07	5.83
23	6.97	6.65	6.63	6.60	6.63	6.62	6.58	6.69		6.35	6.06	5.82
24	6.86	6.64	6.62	6.60	6.61	6.62	6.57	7.10		6.35	6.05	5.81
25	6.75	6.63	6.62	6.60	6.61	6.62	6.56	6.79		6.33	6.03	5.82
26	6.72	6.64	6.62	6.60	6.86	6.62	6.56	6.67		6.31	6.01	5.82
27	6.72	6.64	6.62	6.60	6.85	6.62	6.63			6.29	5.99	5.82
28	6.69	6.64	6.62	6.60	6.71	6.62	6.62			6.26	5.97	5.83
29	6.68	6.65	6.61	6.60	------	6.62	6.62			6.25	5.96	5.82
30	6.68	6.65	6.60	6.60	------	6.62	6.61			6.22	5.94	5.82
31	6.67	------	6.60	6.61	------	6.61	------		------	6.20	5.92	------

05487470 SOUTH RIVER NEAR ACKWORTH, IOWA

LOCATION.--Lat 41°20'14", long 93°29'10", in SE1/4 SE1/4 sec.34, T.76 N., R.23 W., Warren County, on right bank 15 ft downstream from bridge on county highway, 0.5 mile downstream from Otter Creek, and 2.2 miles southwest of Ackworth.
DRAINAGE AREA.--460 sq mi.
PERIOD OF RECORD.--February 1940 to current year.
GAGE.--Water-stage recorder. Datum of gage is 769.97 ft above mean sea level (levels by Corps of Engineers). Prior to June 12, 1946, nonrecording gage, June 13, 1946, to Apr. 13, 1960, water-stage recorder, and Apr. 14, 1960, to Sept. 30, 1961, nonrecording gage, all at site 4.0 miles downstream at datum 8,01 ft lower.
AVERAGE DISCHARGE.--31 years, 223 cfs (6.58 inches per year, 161,600 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 9,200 cfs Oct. 9 (gage height, 22.00 ft); minimum daily, 1.8 cfs Aug. 30.
Period of record: Maximum discharge, 34,000 cfs June 5, 1947 (gage height, 24.60 ft, site and datum then in use); maximum gage height, 28.20 ft July 18, 1969; no flow Sept. 19 to Oct. 13, 1956.
Flood in June 1930 reached a stage of 24.5 ft, from information by local residents (discharge, about 30,000 cfs), at site 4.0 miles downstream.
REMARKS.--Records good except those for winter periods, which are poor.
COOPERATION.--Two discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1941, 1945 (M), 1946.

Rating tables (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used May 24 to June 28; stage-discharge relation affected by ice Nov. 22-24, Dec. 4-7, 13-15, Dec. 21 to Mar. 4).

4.1	.2	4.6	24	8.0	770
4.2	2.4	5.0	65	11.0	1,880
4.3	5.7	5.5	138	16.0	4,600
4.4	10	6.5	355	20.0	7,600

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	156	193	145	46	500	108	79	50	22	7.2	2.3
2	57	145	151	150	45	250	95	82	41	17	7.6	2.3
3	43	148	131	150	44	170	86	75	35	12	20	2.8
4	35	150	105	140	43	250	81	63	33	15	10	17
5	34	138	85	120	42	475	77	63	36	15	8.4	54
6	33	130	52	90	41	328	75	71	47	13	7.4	17
7	32	118	70	65	41	206	75	172	57	13	6.2	13
8	641	111	115	68	40	194	74	536	40	12	6.2	8.5
9	7,040	808	125	70	41	176	67	304	32	23	6.0	6.0
10	2,080	1,040	147	72	41	235	60	183	26	40	5.2	5.2
11	518	405	700	70	42	805	59	136	23	29	4.5	4.6
12	312	285	410	67	42	1,210	61	117	21	19	4.1	4.3
13	223	232	220	64	43	1,230	58	100	35	15	4.4	4.1
14	161	190	230	61	44	1,710	53	88	41	11	3.7	4.6
15	119	162	240	59	45	1,020	52	75	59	9.2	3.3	4.8
16	97	153	393	56	46	552	53	67	90	8.4	3.5	3.5
17	87	158	621	54	47	378	67	66	36	7.6	3.0	2.8
18	79	153	793	52	1,300	378	63	115	26	7.1	3.1	2.6
19	74	167	497	50	4,700	374	59	247	21	6.1	4.0	3.8
20	69	584	215	52	3,700	311	56	154	18	6.4	3.2	6.8
21	64	379	240	53	800	288	88	86	15	7.4	3.7	4.2
22	1,850	220	230	54	250	244	119	69	15	5.8	3.8	3.1
23	1,930	130	170	56	160	193	76	263	13	54	3.1	3.3
24	1,500	180	270	58	170	160	60	2,540	12	62	2.6	2.6
25	650	211	300	56	220	156	53	566	10	29	3.3	5.0
26	395	225	200	55	2,700	145	49	217	8.9	17	2.4	5.6
27	441	219	170	53	3,000	148	166	133	7.9	12	3.3	3.9
28	388	177	150	52	1,100	148	234	98	6.6	9.5	4.6	2.4
29	254	182	145	50	------	129	120	79	7.0	8.1	3.7	2.2
30	219	179	140	49	------	117	85	67	32	8.1	1.8	2.4
31	184	------	145	47	------	118	------	57	------	7.6	2.0	------
TOTAL	19,676	7,535	7,653	2,238	18,833	12,598	2,429	6,968	894.4	521.3	155.3	204.7
MEAN	635	251	247	72.2	673	406	81.0	225	29.8	16.8	5.01	6.82
MAX	7,040	1,040	793	150	4,700	1,710	234	2,540	90	62	20	54
MIN	32	111	52	47	40	117	49	57	6.6	5.8	1.8	2.2
CFSM	1.38	.55	.54	.16	1.46	.88	.18	.49	.06	.04	.01	.01
IN.	1.59	.61	.62	.18	1.52	1.02	.20	.56	.07	.04	.01	.02
AC-FT	39,030	14,950	15,180	4,440	37,360	24,990	4,820	13,820	1,770	1,030	308	406

CAL YR 1970 TOTAL 86,509.3 MEAN 237 MAX 10,900 MIN 4.0 CFSM .52 IN 7.00 AC-FT 171,600
WTR YR 1971 TOTAL 79,705.7 MEAN 218 MAX 7,040 MIN 1.8 CFSM .47 IN 6.45 AC-FT 158,100

PEAK DISCHARGE (BASE, 5,000 CFS).--Oct. 9 (0630) 9,200 cfs (22.00 ft); May 24 (0115) 5,490 cfs (17.27 ft).

05487980 WHITE BREAST CREEK NEAR DALLAS, IOWA

LOCATION.--Lat 41°14'41", long 93°16'08", in NW1/4 NW1/4 sec.3, T.74 N., R.21 W., Marion County, on left bank 15 ft downstream from bridge on county highway, 0.5 mile downstream from Kirk Branch, and 1.7 miles northwest of Dallas.
DRAINAGE AREA.--342 sq mi.
RECORDS AVAILABLE.--October 1962 to current year.
GAGE.--Water-stage recorder. Datum of gage is 759.12 ft above mean sea level, datum of 1929 (Corps of Engineers bench mark).
AVERAGE DISCHARGE.--9 years, 143 cfs (5.68 inches per year, 103,600 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 5,640 cfs Oct. 9 (gage height, 20.24 ft); maximum gage height, 21.09 ft Feb. 19 (backwater from ice); minimum daily discharge, 0.77 cfs Aug. 30, 31, Sept. 1.
Period of record: Maximum discharge, 7,570 cfs Aug. 9, 1970 (gage height, 23.39 ft); minimum daily, 0.07 cfs Sept. 29, 1968.
Flood of June 11, 1962, reached a stage of 28.87 ft, from floodmark (discharge, about 12,000 cfs). Flood of June 6, 1947, may have been slightly higher.
REMARKS.--Records good except those for winter period, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.
COOPERATION.--Three discharge measurements furnished by Coprs of Engineers.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	91	80	55	36	622	65	44	17	4.7	1.4	.77
2	35	87	65	60	37	314	57	42	15	4.7	1.4	.83
3	25	72	59	55	38	222	49	37	13	4.1	26	.93
4	20	66	50	40	36	219	45	33	11	4.1	3.0	1.2
5	19	61	45	35	34	264	42	35	12	6.3	1.9	39
6	19	60	32	30	31	201	41	38	15	6.3	3.0	21
7	20	56	34	25	28	166	40	61	14	4.4	1.9	4.1
8	326	52	36	27	25	143	39	102	9.7	3.4	1.6	1.9
9	4,640	196	40	30	26	150	37	88	8.0	4.4	1.4	1.2
10	2,190	394	45	35	30	153	34	86	7.4	12	1.4	1.1
11	444	239	420	34	35	378	33	53	7.0	18	1.2	.93
12	233	139	296	33	30	720	36	39	6.3	8.2	1.2	.93
13	169	109	160	33	28	798	34	33	6.0	5.6	1.2	.85
14	133	91	140	32	35	972	29	29	7.7	3.4	1.2	.85
15	110	78	202	32	45	665	29	25	226	3.2	1.1	.85
16	95	75	264	31	60	328	31	21	48	2.5	1.1	.93
17	88	76	372	31	80	213	35	19	26	2.0	1.0	.85
18	83	74	520	31	2,000	198	34	31	15	1.8	.85	1.0
19	75	75	300	31	4,200	201	33	368	11	1.6	.83	1.4
20	69	183	150	35	3,400	162	31	133	8.4	1.4	.85	1.3
21	66	120	190	45	1,300	150	36	59	7.0	1.4	.93	1.1
22	223	113	170	50	600	130	39	40	6.3	1.4	1.0	1.0
23	344	60	140	52	300	103	55	36	5.3	1.9	1.1	.93
24	484	54	120	54	240	89	36	128	4.7	22	1.1	1.0
25	255	57	100	50	250	95	28	54	3.8	13	1.1	1.2
26	170	71	80	40	2,280	106	25	76	3.3	6.1	1.1	1.2
27	373	78	70	37	2,200	106	83	44	2.9	3.5	1.4	1.1
28	273	74	60	36	1,410	91	119	30	2.5	2.5	1.0	1.1
29	169	77	50	35	------	80	106	24	2.5	1.9	.85	1.0
30	127	76	45	35	------	72	57	21	4.7	1.6	.77	1.0
31	106	------	48	34	------	70	------	19	------	1.6	.77	------
TOTAL	11,425	3,054	4,383	1,183	18,814	8,181	1,358	1,848	526.5	159.0	64.65	92.55
MEAN	369	102	141	38.2	672	264	45.3	59.6	17.6	5.13	2.09	3.09
MAX	4,640	394	520	60	4,200	972	119	368	226	22	26	39
MIN	19	52	32	25	25	70	25	19	2.5	1.4	.77	.77
CFSM	1.08	.30	.41	.11	1.96	.77	.13	.17	.05	.02	.006	.009
IN.	1.24	.33	.48	.13	2.05	.89	.15	.20	.06	.02	.007	.01
AC-FT	22,660	6,060	8,690	2,350	37,320	16,230	2,690	3,670	1,040	315	128	184

CAL YR 1970 TOTAL 69,915.80 MEAN 192 MAX 5,710 MIN 1.8 CFSM .56 IN 7.60 AC-FT 138,700
WTR YR 1971 TOTAL 51,088.70 MEAN 140 MAX 4,640 MIN .77 CFSM .41 IN 5.56 AC-FT 101,300

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	0915	20.24	5,640	2-26	2030	17.25	3,980
2-19	--	--	* 4,700				

* About

05488100 LAKE RED ROCK NEAR PELLA, IOWA

LOCATION.--Lat 41°22'11", long 92°58'48", in NE1/4 NW1/4 sec.19, T.76 N., R.18 W., at outlet works near right end of Red Rock Dam on Des Moines River, 1.4 miles upstream from Lake Creek, 4.5 miles southwest of Pella and at mile 142.3.
DRAINAGE AREA.--12,323 sq mi.
PERIOD OF RECORD.--March 1969 to current year.
GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers).
EXTREMES.--Current year: Maximum contents, 237,000 acre-ft Feb. 24 (elevation, 736.78 ft); minimum, 86,600 acre-ft Nov. 19 (elevation, 724.57 ft).
Period of record: Maximum contents, 1,010,000 acre-ft Aug. 2, 1969 (elevation, 764.83 ft); minimum, 86,600 acre-ft Nov. 19, 1970 (elevation, 724.57 ft).
REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in March 1969. Releases controlled through 14 concrete conduits extending through the concrete ogee spillway section into the stilling basin. Inlet invert elevation at 690 ft above mean sea level. Maximum design discharge through the conduits is 37,500 cfs but normal flood control operation limits maximum outflow to 30,000 cfs. Spillway section consists of 5 Tainter gates, 41 x 46 feet, on concrete ogee crest at elevation 736 ft. The storage capacity of the reservoir at full flood-control pool level (780 ft) is 1,830,000 acre-feet and that of conservation pool level (725 feet) is 90,000 acre-feet. Reservoir is used for flood control, low-flow augmentation, conservation and recreation. Normal operation will maintain an elevation of 725 ft with minimum release of 300 cfs and maximum release of 30,000 cfs during the non-growing season, providing discharges at Ottumwa and Keosauqua do not exceed 30,000 cfs and 35,000 cfs respectively.
COOPERATION.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)
Note--Includes 90,000 acre-feet sedimentation storage below elevation 725 ft.

725	90,000	735	208,400
730	142,000	740	292,000

CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91,200	91,000	91,100	92,000	91,700	192,000	99,900	94,500	95,600	92,800	91,700	91,000
2	91,900	90,800	89,100	92,100	92,000	170,000	103,000	92,900	94,300	92,200	92,700	91,000
3	92,000	90,100	91,600	91,700	92,000	145,000	104,000	92,200	93,600	92,300	94,000	91,000
4	91,700	90,900	92,200	90,900	92,200	122,000	104,000	91,900	93,100	93,600	94,500	91,700
5	92,300	90,600	92,100	90,000	91,900	114,000	100,000	91,000	93,400	93,500	94,400	93,100
6	92,300	91,800	91,200	89,300	91,600	109,000	92,700	91,900	94,200	92,200	94,000	93,400
7	92,200	91,600	90,500	89,000	90,800	102,000	89,700	93,000	103,000	90,900	93,600	93,600
8	94,100	92,000	90,400	88,700	90,100	96,200	92,200	98,700	102,000	90,500	93,000	93,200
9	119,000	94,000	89,800	88,700	90,000	93,500	90,100	106,000	94,500	90,600	92,500	93,100
10	129,000	101,000	90,800	89,900	89,800	91,100	90,100	108,000	92,700	92,100	92,400	92,800
11	124,000	100,000	93,200	89,000	89,700	93,400	91,000	109,000	94,300	92,300	91,600	92,400
12	110,000	96,900	95,200	88,700	89,500	99,800	90,600	107,000	94,600	91,100	91,200	92,100
13	100,000	93,900	95,200	88,700	89,300	105,000	90,200	105,000	93,800	90,300	91,300	92,000
14	95,900	93,700	94,700	89,300	89,200	118,000	91,100	102,000	93,600	91,000	91,300	92,000
15	95,800	92,600	93,400	90,400	89,100	131,000	91,900	98,700	92,000	90,700	91,100	92,000
16	95,000	91,000	92,000	91,600	89,000	142,000	92,400	95,300	91,000	90,600	91,200	91,700
17	93,700	89,500	92,000	92,600	89,200	151,000	91,700	92,900	91,000	90,100	91,400	91,300
18	92,400	87,600	92,900	93,200	99,300	158,000	91,300	92,600	90,600	90,900	91,000	91,800
19	90,900	89,200	93,800	93,100	123,000	158,000	91,800	92,100	90,600	90,300	91,200	91,900
20	89,800	89,600	93,700	93,100	176,000	152,000	92,100	96,100	90,800	90,300	91,200	91,900
21	89,800	91,100	91,700	93,200	210,000	151,000	91,100	97,000	90,600	90,400	91,100	91,900
22	92,300	95,500	90,600	93,200	228,000	136,000	91,800	93,600	90,800	90,800	91,200	92,400
23	92,700	92,700	90,100	93,100	236,000	119,000	92,900	92,700	91,000	92,900	90,800	91,900
24	94,500	90,000	89,400	92,900	234,000	110,000	92,700	105,000	91,000	94,100	90,900	91,800
25	91,100	89,400	89,400	92,800	222,000	103,000	92,500	109,000	91,200	94,400	90,700	92,100
26	87,600	90,100	89,600	92,200	213,000	97,700	91,200	108,000	91,200	93,700	90,400	92,100
27	87,400	90,300	90,200	91,400	218,000	92,700	94,400	106,000	90,400	92,800	90,600	92,300
28	87,600	92,700	90,300	91,300	209,000	91,500	94,100	105,000	89,900	92,000	90,900	92,400
29	89,200	94,000	90,600	91,700	------	90,900	94,500	103,000	90,700	91,100	90,900	92,500
30	90,400	93,700	90,900	92,100	------	94,100	94,800	100,000	92,400	90,500	90,800	92,400
31	91,200	------	91,700	91,900	------	97,000	------	97,500	------	90,400	91,000	------
+	725.15	725.42	725.18	725.25	735.10	725.79	725.53	725.83	725.27	725.05	725.12	725.27
*	-500	+2,500	-2,000	+200	+117,100	-112,000	-2,200	+2,700	-5,100	-2,000	+600	+1,400
MAX	129,000	101,000	95,200	93,200	236,000	192,000	104,000	109,000	103,000	94,400	94,500	93,600
MIN	87,400	87,600	89,100	88,700	89,000	90,900	89,700	91,000	89,900	90,100	90,400	91,000

CAL YR 1970.....*-1,000
WTR YR 1971.....*+700

\+ Elevation, in feet, at end of month.
* Change in contents, in acre-feet.

05488500 DES MOINES RIVER NEAR TRACY, IOWA

LOCATION.--Lat 41°16'53", long 92°51'34", in NW1/4 SE1/4 sec.19, T.75 N., R.17 W., Mahaska County, on right bank 250 ft upstream from abandoned Bellefountaine Bridge, 0.5 mile downstream from bridge on State Highway 92, 0.8 mile east of Tracy, 3.1 miles upstream from Cedar Creek, 6.4 miles downstream from English Creek, and at mile 130.4.
DRAINAGE AREA.--12,479 sq mi.
PERIOD OF RECORD.--March 1920 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 670.91 ft above mean sea level. Prior to June 26, 1940, and June 30, 1952, to Nov. 4, 1960, nonrecording gage, and June 27, 1940, to June 29, 1952, water-stage recorder, at site 250 ft downstream at same datum.
AVERAGE DISCHARGE.--51 years, 4,333 cfs (4.72 inches per year, 3,139,000 acre-ft per year); median of yearly mean discharges, 3,770 cfs (4.1 inches per year, 2,730,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 28,100 cfs Feb. 26 (gage height, 15.62 ft); minimum daily, 340 cfs Sept. 20, 21.
Period of record: Maximum discharge, 155,000 cfs, June 14, 1947 (gage height, 26.5 ft); minimum daily, 40 cfs Jan. 29 to Feb. 1, 1940.
Maximum stage since 1851, that of June 14, 1947. Flood of May 31, 1903, reached a stage of about 25 ft (discharge, about 130,000 cfs). Minimum daily discharge since at least 1910, that of Jan. 29 to Feb. 1, 1940.
REMARKS.--Records good except those for winter period, which are fair. A summary of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Eight discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 1438: Drainage area. WSP 1508: 1920 (M), 1922 (M), 1933.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,440	2,540	5,490	1,420	840	25,600	17,100	4,090	5,150	2,580	1,350	392
2	600	2,520	5,000	1,420	840	25,100	17,600	4,110	4,010	3,450	1,210	391
3	568	2,380	3,100	1,420	970	24,300	17,700	3,970	3,830	4,580	1,400	391
4	560	2,120	2,860	1,420	1,020	22,200	17,600	3,610	3,690	4,190	1,420	420
5	506	1,940	2,490	1,420	1,020	15,500	17,600	3,590	3,460	3,960	1,410	441
6	429	1,770	2,590	1,420	1,020	12,500	17,500	3,160	3,450	4,400	1,410	479
7	552	1,770	2,560	1,420	1,020	12,400	15,900	3,050	5,930	6,390	1,410	522
8	736	1,790	2,120	1,300	900	11,200	12,200	3,450	10,100	9,290	1,400	519
9	3,410	1,880	2,100	1,230	840	8,310	11,200	4,380	10,100	9,500	1,360	517
10	6,450	2,880	2,120	1,250	840	8,140	10,000	4,360	9,820	8,460	1,190	519
11	6,940	6,790	2,160	1,250	840	7,340	8,860	4,350	9,800	7,330	1,130	532
12	9,420	6,770	2,170	1,250	840	9,000	8,840	4,640	11,500	7,170	968	497
13	8,910	5,220	2,160	1,100	840	13,200	8,270	4,790	11,600	6,490	855	377
14	5,000	3,170	2,260	700	840	17,300	7,130	4,640	11,100	5,240	849	375
15	2,490	3,780	2,600	520	840	21,500	6,660	4,600	10,200	4,810	801	373
16	2,730	3,860	2,540	520	840	23,800	6,660	4,450	9,340	4,580	686	381
17	2,720	4,090	2,560	520	840	23,900	6,640	3,960	7,610	4,040	679	371
18	2,700	4,090	2,600	600	2,240	24,000	6,330	3,560	7,040	3,630	676	347
19	2,700	3,540	2,600	870	7,660	24,200	5,780	4,890	6,010	3,090	702	347
20	2,590	2,620	2,600	880	15,400	24,100	5,520	6,940	5,370	2,780	693	340
21	1,850	3,730	2,500	890	22,300	24,000	5,520	6,900	4,860	2,540	684	340
22	2,690	3,800	2,200	1,000	25,900	23,700	5,180	6,900	4,470	2,310	673	348
23	5,960	3,750	1,800	1,020	26,000	23,300	4,740	6,130	4,330	2,200	668	344
24	6,310	3,410	1,600	1,020	26,100	22,000	4,720	5,640	4,130	2,320	665	349
25	6,260	2,690	1,420	1,020	26,100	19,200	4,700	7,020	3,460	2,670	640	368
26	5,880	2,310	1,420	1,020	26,900	16,000	4,450	7,040	3,460	2,650	581	358
27	3,510	2,240	1,420	1,020	27,600	15,500	3,960	6,410	3,450	2,640	488	356
28	3,430	2,110	1,420	1,020	26,400	12,500	4,040	5,570	3,170	2,580	392	361
29	2,610	2,110	1,420	900	------	11,200	4,040	5,550	2,610	2,420	386	367
30	2,580	2,800	1,420	840	------	11,600	4,080	5,540	2,490	2,220	390	364
31	2,550	------	1,420	840	------	14,900	------	5,500	------	1,820	397	------
TOTAL	105,081	94,470	72,720	32,520	247,790	547,490	270,520	152,790	185,540	132,330	27,563	12,086
MEAN	3,390	3,149	2,346	1,049	8,850	17,660	9,017	4,929	6,185	4,269	889	403
MAX	9,420	6,790	5,490	1,420	27,600	25,600	17,700	7,040	11,600	9,500	1,420	532
MIN	429	1,770	1,420	520	840	7,340	3,960	3,050	2,490	1,820	386	340
AC-FT	208,400	187,400	144,200	64,500	491,500	1,086M	536,600	303,100	368,000	262,500	54,670	23,970

CAL YR 1970 TOTAL 1,296,918 MEAN 3,553 MAX 18,100 MIN 368 AC-FT 2,572,000
WTR YR 1971 TOTAL 1,880,900 MEAN 5,153 MAX 27,600 MIN 340 AC-FT 3,731,000

05489000 CEDAR CREEK NEAR BUSSEY, IOWA

LOCATION.--Lat 41°13'09", long 92°54'38", at SW corner sec.11, T.74 N., R.18 W., Marion County, on left bank 10 ft downstream from bridge on State Highway 156, 0.8 mile downstream from North Cedar Creek, 1.6 miles northwest of Bussey, 3.0 miles upstream from Honey Creek, and 8.9 miles upstream from mouth.
DRAINAGE AREA.--374 sq mi.
PERIOD OF RECORD.--October 1947 to current year.
GAGE.--Water-stage recorder. Datum of gage is 682.15 ft above mean sea level (levels by Corps of Engineers). Prior to Feb. 21, 1949, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--24 years, 178 cfs (6.46 inches per year, 129,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 5,420 cfs Oct. 10 (gage height, 20.59 ft); minimum daily, 0.74 cfs Sept. 18.
Period of record: Maximum discharge, 29,300 cfs May 9, 1950 (gage height, 27.50 ft); maximum gage height, 28.06 ft July 2, 1958; no flow Sept. 6-20, 1955, Oct. 11, 12, 1956.
Flood in June 1946 reached a stage of 28.45 ft on upstream side and 28.05 ft on downstream side of bridge from levels to floodmarks by Corps of Engineers (discharge, 31,500 cfs).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Two discharge measurements furnished by Corps of Engineers.
REVISIONS.--WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Nov. 2 to Dec. 10, June 16 to July 9, Sept. 19, 25, 29, 30; stage-discharge relation affected by ice Nov. 24, Dec. 14, 15, Dec. 19 to Feb. 18, Feb. 22-25, Mar. 2-9).

4.0	.42	4.6	18	7.0	472
4.1	1.1	4.9	41	10.0	1,330
4.2	2.5	5.4	102	14.0	2,550
4.3	4.6	6.0	213	20.0	5,100
4.4	7.9				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	103	70	36	45	428	78	48	22	12	2.9	1.7
2	81	95	64	37	42	240	67	47	20	12	2.8	1.7
3	71	92	54	36	40	190	61	44	17	10	34	1.9
4	61	87	50	34	38	170	57	39	15	9.5	22	7.0
5	56	82	45	30	35	150	55	42	15	9.9	8.4	133
6	55	80	36	25	32	130	53	47	27	10	5.6	40
7	53	78	32	28	30	120	54	54	27	9.7	3.5	7.9
8	111	73	41	30	26	115	53	67	16	8.7	3.1	3.3
9	3,520	162	49	31	23	110	51	63	12	12	2.7	2.2
10	4,540	244	57	32	22	121	45	46	11	11	2.7	1.9
11	580	143	395	32	25	284	43	38	9.9	20	2.3	1.4
12	317	103	323	33	27	1,050	49	34	9.6	18	3.0	1.1
13	233	94	163	33	30	574	50	30	9.2	11	2.4	1.4
14	190	89	110	34	35	665	41	28	280	7.7	64	1.2
15	154	78	120	34	40	549	38	26	266	6.3	8.1	.90
16	131	73	197	34	50	284	41	22	67	5.5	3.4	.89
17	121	74	383	35	90	184	48	19	42	5.1	2.6	.88
18	115	74	477	36	2,300	181	50	29	29	4.3	2.2	.74
19	109	72	330	37	4,760	190	47	331	23	3.8	2.0	.77
20	101	95	150	38	3,950	165	44	184	18	3.4	2.0	1.2
21	97	106	130	40	702	152	45	77	16	3.6	2.0	1.4
22	120	82	120	45	350	136	46	52	13	3.3	2.2	1.2
23	220	51	100	42	240	110	37	44	13	11	2.0	1.1
24	330	45	90	40	250	92	33	59	12	5.1	2.0	.81
25	197	43	80	41	270	95	30	98	12	7.1	2.0	.82
26	146	50	64	43	1,750	96	29	85	11	6.8	2.0	1.2
27	155	68	56	44	2,860	97	90	48	10	4.5	1.9	1.1
28	277	71	50	45	603	100	156	36	9.3	3.9	1.8	1.0
29	227	68	40	47	------	90	81	30	8.7	3.5	1.8	1.0
30	148	71	34	50	------	82	55	27	12	3.4	2.6	1.3
31	123	------	35	48	------	80	------	24	------	3.1	2.0	------
TOTAL	12,729	2,646	3,945	1,150	18,665	7,030	1,627	1,818	1,052.7	245.2	202.0	222.01
MEAN	411	88.2	127	37.1	667	227	54.2	58.6	35.1	7.91	6.52	7.40
MAX	4,540	244	477	50	4,760	1,050	156	331	280	20	64	133
MIN	53	43	32	25	22	80	29	19	8.7	3.1	1.8	.74
CFSM	1.10	.24	.34	.10	1.78	.61	.14	.16	.09	.02	.02	.02
IN.	1.27	.26	.39	.11	1.86	.70	.16	.18	.10	.02	.02	.02
AC-FT	25,250	5,250	7,820	2,280	37,020	13,940	3,230	3,610	2,090	486	401	440

CAL YR 1970 TOTAL 70,822.30 MEAN 194 MAX 4,540 MIN 3.7 CFSM .52 IN 7.04 AC-FT 140,500
WTR YR 1971 TOTAL 51,331.91 MEAN 141 MAX 4,760 MIN .74 CFSM .38 IN 5.11 AC-FT 101,800

PEAK DISCHARGE (BASE, 4,000 CFS).--Oct. 10 (0915) 5,420 cfs (20.59 ft); Feb. 19 (1915) 5,240 cfs (20.26 ft).

05489500 DES MOINES RIVER AT OTTUMWA, IOWA

LOCATION.--Lat 41°00'39", long 92°24'40", in SE1/4 NE1/4 sec.25, T.72 N., R.14 W., Wapello County, on right bank 15 ft downstream from Wabash Railroad Bridge at Ottumwa, 0.4 mile downstream from Ottumwa powerplant, 6.5 miles upstream from Village Creek, 9.5 miles downstream from South Avery Creek, and at mile 94.1.
DRAINAGE AREA.--13,374 sq mi.
PERIOD OF RECORD.--March 1917 to current year (published as "at Eldon" October 1930 to March 1935). Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 622.00 ft above mean sea level. Prior to Sept. 30, 1930, nonrecording gages at Market Street Bridge half a mile upstream at datum 0.83 ft higher. Oct. 1, 1930, to Mar. 31, 1935, nonrecording gage at Eldon 15 miles downstream at different datum. Apr. 1, 1935, to Oct. 25, 1963, water-stage recorder at site 1,100 ft downstream at Vine Street Bridge at datum 0.77 ft higher.
AVERAGE DISCHARGE.--54 years, 4,760 cfs (4.83 inches per year, 3,449,000 acre-ft per year); median of yearly mean discharges, 3,980 cfs (4.0 inches per year, 2,880,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 41,800 cfs Feb. 25 (gage height, 13.12 ft); minimum daily, 54 cfs Sept. 16.
Period of record: Maximum discharge, 135,000 cfs June 7, 1947 (gage height, 20.2 ft, site and datum then in use); minimum daily, 30 cfs Jan. 27-29, 31, Feb. 2, 3, 5-7, 1940.
Maximum stage since at least 1850, that of June 7, 1947. Flood of May 31, 1903, reached a stage of 19.4 ft, former site and datum at Vine Street Bridge or about 22 ft at Market Street Bridge, from information by Corps of Engineers and U.S. Weather Bureau (discharge, about 140,000 cfs).
REMARKS.--Records good except those for winter period, which are fair. Prior to Dec. 12, 1958, and since Nov. 30, 1960, diurnal fluctuation at low flow caused by powerplant above station. Flow regulated by Lake Red Rock beginning March 12, 1969 (see sta. 05488100). Records of periodic chemical analysis for the current year are published in Part 2 of this report.
COOPERATION.--Two discharge measurements furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 525: 1917-20. WSP 1308: 1917-23 (M), 1925-27 (M), 1931. WSP 1438: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 16-22, Feb. 20 to Apr. 9; stage-discharge relation affected by ice Dec. 22 to Feb. 19).

0.5	40	1.9	1,610
.6	71	3.0	4,220
.7	125	8.0	19,500
.9	270	12.0	34,600
1.2	560		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,870	2,900	4,060	1,600	950	26,300	16,900	4,430	5,940	2,670	1,610	412
2	1,650	2,850	5,650	1,600	1,000	25,200	18,000	4,400	4,900	2,870	1,400	412
3	904	2,820	4,550	1,600	1,100	24,500	18,100	4,270	4,200	3,910	1,260	402
4	810	2,610	3,140	1,600	1,150	23,700	18,200	4,150	4,090	4,570	1,590	483
5	797	1,650	3,030	1,600	1,200	19,300	18,200	3,910	3,920	4,130	1,410	549
6	771	1,280	2,440	1,600	1,140	14,300	18,000	3,830	3,780	4,060	1,430	560
7	656	2,000	2,900	1,600	1,080	13,500	17,900	3,410	3,740	5,070	1,470	584
8	706	2,010	2,570	1,550	1,040	13,400	14,300	3,620	9,420	8,380	1,400	644
9	13,200	2,180	2,190	1,500	980	10,500	12,400	4,070	10,700	9,810	1,450	1,080
10	12,200	3,130	2,400	1,400	940	9,480	11,500	4,730	10,700	9,570	1,360	584
11	9,780	4,540	4,010	1,400	930	9,360	9,930	4,750	10,100	7,940	1,180	560
12	8,880	5,950	3,420	1,400	920	10,000	9,570	4,860	11,500	7,550	1,070	560
13	9,600	6,080	2,680	1,400	910	13,400	9,510	4,950	12,100	7,150	1,010	570
14	6,930	4,540	2,840	1,300	900	17,000	8,160	5,040	12,500	5,910	797	404
15	3,890	3,670	2,690	1,000	900	20,600	7,210	4,970	11,400	4,850	922	344
16	2,580	3,990	3,400	640	1,000	23,800	7,100	4,960	10,700	4,720	866	54
17	2,820	4,220	3,870	600	1,600	24,000	7,120	4,630	8,690	4,160	656	381
18	2,750	4,300	4,050	620	4,000	24,200	7,110	4,180	7,660	3,830	732	484
19	2,750	4,330	4,000	670	10,000	24,400	6,500	5,650	6,850	3,490	693	301
20	2,680	3,810	3,370	940	17,000	24,500	5,920	7,630	5,890	2,920	745	459
21	2,430	3,290	3,180	1,080	20,800	24,400	5,810	7,740	5,070	2,710	693	293
22	1,960	3,920	3,000	1,120	24,000	23,800	5,780	7,700	4,750	2,310	719	364
23	4,060	3,970	2,400	1,160	25,600	23,800	5,110	7,750	4,410	2,720	745	300
24	6,800	4,740	2,000	1,200	26,200	23,500	4,870	5,980	4,290	2,270	693	315
25	6,780	4,020	1,700	1,120	29,200	21,000	4,900	7,620	3,940	2,540	668	411
26	6,550	3,280	1,500	1,040	28,300	18,300	4,890	7,880	3,610	2,700	668	276
27	5,800	2,340	1,600	960	31,300	16,800	4,680	7,720	3,560	2,590	608	490
28	4,280	2,400	1,600	1,040	28,700	14,900	4,650	6,360	3,530	2,680	494	312
29	4,030	2,330	1,600	1,200	------	12,600	4,520	6,090	3,120	2,380	412	255
30	3,160	2,350	1,600	1,120	------	12,300	4,490	6,060	2,750	2,340	346	315
31	2,930	------	1,600	1,040	------	13,900	------	5,980	------	2,150	440	------
TOTAL	136,004	101,500	89,040	37,700	262,840	576,740	291,330	169,320	197,810	134,950	29,537	13,158
MEAN	4,387	3,383	2,872	1,216	9,387	18,600	9,711	5,462	6,594	4,353	953	439
MAX	13,200	6,080	5,650	1,600	31,300	26,300	18,200	7,880	12,500	9,810	1,610	1,080
MIN	656	1,280	1,500	600	900	9,360	4,490	3,410	2,750	2,150	346	54
AC-FT	269,800	201,300	176,600	74,780	521,300	1,144M	577,900	335,800	392,400	267,700	58,590	26,100

CAL YR 1970 TOTAL 1,482,277 MEAN 4,061 MAX 17,000 MIN 322 AC-FT 2,940,000
WTR YR 1971 TOTAL 2,039,929 MEAN 5,589 MAX 31,300 MIN 54 AC-FT 4,046,000

05490000 LAKE WAPELLO NEAR DRAKESVILLE, IOWA

LOCATION.--Lat 40°49'17", long 92°34'22", in SE1/4 NW1/4 sec.34, T.70 N., R.15 W., Davis County, 900 ft west from dam on Pee Dee Creek in Lake Wapello State Park, 5.2 miles northwest of Drakesville, and 9.7 miles northwest of Bloomfield.
DRAINAGE AREA.--7.75 sq mi.
PERIOD OF RECORD.--June 1936 to September 1971 (discontinued).
GAGE.--Water-stage recorder. Datum of gage is 90.0 ft above datum assumed for this lake and 10.05 ft below crest of spillway of dam forming lake. Prior to Nov. 26, 1941, nonrecording gage at site 0.5 mile southwest at same datum.
EXTREMES.--Current year: Maximum gage height, 11.83 ft Oct. 9; minimum, 8.90 ft Sept. 24.
Period of record: Maximum gage height observed, 12.70 ft June 12, 1941; minimum, lake drained Sept. 16, 1960, to Mar. 12, 1961.
REMARKS.--Lake is formed by earthfill dam with ungated concrete spillway at elevation 10.05 ft gage datum, or 100.05 ft assumed lake gage datum. Releases controlled by flume gate. Lake is used for conservation and recreation. Water is diverted from lake for fish rearing ponds below lake outlet. Area of lake at spillway elevation is 287 acres.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.14	10.13	10.13		10.12	10.24	10.06	9.85	10.08	9.70	9.50	9.05
2	10.14	10.12	10.13		10.13	10.20	10.03	9.84	10.07	9.68	9.48	9.03
3	10.11	10.12	10.13		10.13	10.17	10.01	9.83	10.06	9.65	9.48	9.01
4	10.10		10.11		10.14	10.16	9.99	9.82	10.05	9.68	9.47	9.04
5	10.08		10.10		10.17	10.15	9.97	9.83	10.05	9.70	9.45	9.10
6	10.08		10.09		10.17	10.16	9.95	9.92	10.03	9.68	9.43	9.09
7	10.07		10.08		10.16	10.15	9.94	9.95	10.07	9.67	9.43	9.07
8	10.30		10.08		10.15	10.14	9.92	9.96	10.05	9.65	9.41	9.07
9	11.20		10.08		10.14	10.15	9.90	9.96	10.03	9.66	9.40	9.09
10	10.51		10.32		10.14	10.16	9.89	9.96	10.03	9.68	9.40	9.07
11	10.31		10.82		10.13	10.35	9.88	9.95	10.02	9.69	9.38	9.05
12	10.24		10.42	10.10	10.13	10.45	9.88	9.94	10.02	9.68	9.36	9.03
13	10.20		10.27	10.10	10.13	10.37	9.87	9.94	10.00	9.66	9.34	9.02
14	10.17		10.21	10.10	10.12	10.34	9.87	9.93	9.99	9.65	9.32	8.99
15	10.15		10.17	10.10	10.12	10.31	9.86	9.92	9.98	9.63	9.29	8.97
16	10.14		10.21	10.10	10.12	10.24	9.85	9.90	9.97	9.61	9.28	8.94
17	10.13		10.23	10.10	10.17	10.20	9.85	9.89	9.95	9.60	9.26	8.92
18	10.12			10.10	10.47	10.18	9.85	9.88	9.93	9.60	9.24	8.95
19	10.11			10.10	10.64	10.18	9.85	9.90	9.90	9.60	9.23	8.99
20	10.10			10.10	10.52	10.16	9.84	9.88	9.87	9.58	9.21	8.98
21	10.09			10.09	10.32	10.15	9.85	9.87	9.85	9.57	9.22	8.96
22	10.12			10.09	10.27	10.14	9.83	9.86	9.84	9.55	9.22	8.94
23	10.19			10.09	10.22	10.12	9.82	9.93	9.85	9.61	9.21	8.92
24	10.22			10.09	10.19	10.11	9.80	10.14	9.83	9.62	9.20	8.91
25	10.19			10.09	10.20	10.10	9.78	10.33	9.81	9.62	9.18	8.93
26	10.17			10.09	10.41	10.10	9.77	10.22	9.80	9.62	9.15	8.94
27	10.18			10.10	10.39	10.10	9.84	10.16	9.77	9.60	9.13	8.94
28	10.18			10.10	10.29	10.10	9.87	10.14	9.75	9.57	9.11	8.95
29	10.17			10.11	------	10.10	9.86	10.12	9.73	9.55	9.10	8.94
30	10.16			10.12	------	10.10	9.85	10.11	9.72	9.53	9.08	8.93
31	10.14	------		10.12	------	10.08	------	10.09	------	9.52	9.06	------

05490500 DES MOINES RIVER AT KEOSAUQUA, IOWA

LOCATION.--Lat 40°43'40", long 91°57'34", in SE1/4 SW1/4 sec.36, T.69 N., R.10 W., Van Buren County, on right bank 10 ft upstream from bridge on State Highway 1 at Keosauqua, 4.0 miles downstream from Chequest Creek, and at mile 51.3.
DRAINAGE AREA.--14,038 sq mi.
PERIOD OF RECORD.--May 1903 to July 1906, April to December 1910, August 1911 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 557.36 ft above mean sea level. Prior to Dec. 24, 1933, non-recording gage at same site and datum.
AVERAGE DISCHARGE.--62 years (1903-5, 1911-71), 5,231 cfs (5.06 inches per year, 3,790,000 acre-ft per year); median of yearly mean discharges, 4,420 cfs (4.3 inches per year, 3,200,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 35,300 cfs Feb. 27 (gage height, 10.82 ft); maximum gage height, 12.48 ft Feb. 19 (backwater from ice); minimum daily discharge, 239 cfs Sept. 18.
Period of record: Maximum discharge, 146,000 cfs June 1, 1903 (gage height, 27.85 ft, from floodmark); minimum daily, 40 cfs Jan. 30, 1940.
Flood of June 1, 1851, reached a stage of 24 ft (discharge not determined).
REMARKS.--Records good except those for winter periods, which are poor. Prior to Dec. 21, 1958, and since Nov. 30, 1960, some diurnal fluctuation at medium and low stages caused by powerplant at Ottumwa. Flow regulated by Lake Red Rock beginning March 12, 1969 (see station 05488100). Records of periodic chemical analyses for the current year are published in Part 2 of this report.
COOPERATION.--One discharge measurement furnished by Corps of Engineers.
REVISIONS (WATER YEARS).--WSP 525: 1913-20. WSP 1438: Drainage area. WSP 1508: 1903, 1905-6, 1915-18 (M), 1922 (M), 1924-26 (M), 1932-34 (M), 1937, 1942 (M).

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Mar. 1 to Apr. 26, June 13-21; stage-discharge relation affected by ice Dec. 22 to Feb. 20).

-0.4	186	4.0	10,000
-0.1	400	7.0	19,900
0.3	920	11.0	36,100
1.0	2,220		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,580	3,170	2,530	1,750	1,100	28,500	15,500	4,660	6,110	3,020	2,150	405
2	2,860	3,150	5,580	1,700	1,000	27,100	17,700	4,640	5,920	2,880	1,660	396
3	1,730	3,100	5,530	1,700	1,050	26,200	18,200	4,610	4,810	3,300	1,590	388
4	1,040	3,080	4,060	1,700	1,150	25,200	18,300	4,490	4,450	4,680	1,490	408
5	950	2,740	3,270	1,700	1,250	22,100	18,300	4,280	4,370	4,800	1,660	652
6	950	1,900	2,960	1,700	1,300	16,300	18,300	4,470	4,210	4,360	1,500	590
7	965	1,330	2,560	1,700	1,200	13,400	18,200	4,300	4,110	4,510	1,500	555
8	862	2,140	2,980	1,700	1,150	13,100	16,100	3,850	5,380	6,120	1,500	554
9	11,100	2,260	2,620	1,650	1,100	11,900	12,900	3,970	10,500	9,340	1,490	1,020
10	19,300	3,170	2,510	1,600	1,050	9,050	11,700	4,640	10,700	9,730	1,480	1,190
11	13,000	3,630	11,000	1,500	1,000	10,100	10,400	4,900	10,400	9,100	1,410	530
12	8,520	5,580	7,060	1,500	1,000	13,000	9,270	4,960	10,400	7,540	1,200	548
13	9,690	5,920	4,300	1,500	980	12,400	9,300	5,030	12,300	7,360	1,110	548
14	9,360	5,950	3,200	1,500	970	15,900	8,880	5,080	12,400	6,800	1,060	567
15	6,520	4,140	3,150	1,400	960	20,300	7,480	5,080	12,700	5,520	849	435
16	3,970	4,090	3,460	1,000	1,100	23,500	7,030	5,060	11,200	4,860	942	404
17	3,130	4,490	4,590	680	1,800	24,700	7,060	4,980	10,100	4,780	931	340
18	3,220	4,230	5,580	660	4,000	24,700	7,060	4,640	8,320	4,270	698	239
19	3,150	4,470	5,280	640	10,000	25,200	6,890	5,200	7,680	4,010	747	508
20	3,130	4,930	4,520	750	16,000	25,200	6,350	6,160	6,680	3,580	725	509
21	3,100	4,180	3,560	1,000	20,000	25,100	5,890	7,700	5,980	3,030	784	332
22	2,790	3,990	3,300	1,150	23,700	24,700	5,870	7,510	5,340	2,780	722	427
23	2,740	4,230	3,100	1,200	25,700	24,300	5,760	7,560	5,040	2,470	742	369
24	6,470	3,920	2,500	1,250	27,100	23,900	5,180	7,370	4,790	3,070	765	330
25	7,200	4,230	2,100	1,300	30,300	22,200	5,100	6,650	4,720	2,370	761	405
26	6,760	3,730	1,900	1,200	30,700	19,600	5,100	7,960	4,220	2,960	681	545
27	6,570	3,370	1,800	1,100	34,500	16,800	5,200	7,820	4,000	2,750	659	260
28	5,580	2,580	1,700	1,000	31,800	16,000	5,000	7,340	3,920	2,760	611	374
29	4,880	2,560	1,800	1,100	------	13,300	4,960	6,140	3,890	2,760	517	408
30	4,130	2,510	1,800	1,250	------	11,800	4,710	6,140	3,340	2,530	430	357
31	3,440	------	1,800	1,200	------	12,500	------	6,110	------	2,410	402	------
TOTAL	160,687	108,770	112,100	40,780	272,960	598,050	297,690	173,300	207,980	140,450	32,766	14,593
MEAN	5,183	3,626	3,616	1,315	9,749	19,290	9,923	5,590	6,933	4,531	1,057	486
MAX	19,300	5,950	11,000	1,750	34,500	28,500	18,300	7,960	12,700	9,730	2,150	1,190
MIN	862	1,330	1,700	640	960	9,050	4,710	3,850	3,340	2,370	402	239
AC-FT	318,700	215,700	222,400	80,890	541,400	1,186M	590,500	343,700	412,500	278,600	64,990	28,950

CAL YR 1970 TOTAL 1,698,556 MEAN 4,654 MAX 19,900 MIN 500 AC-FT 3,369,000
WTR YR 1971 TOTAL 2,160,126 MEAN 5,918 MAX 34,500 MIN 239 AC-FT 4,285,000

05491000 SUGAR CREEK NEAR KEOKUK, IOWA

LOCATION.--Lat 40°26'33", long 91°38'24", in NW1/4 SE1/4 sec.7, T.65 N., R.5 W., Lee County, on left bank 13 ft downstream from bridge on county highway W62, 2.8 miles downstream from Barlean Creek, 4.6 miles upstream from mouth, and 6.0 miles northwest of Post Office in Keokuk.
DRAINAGE AREA.--105 sq mi.
PERIOD OF RECORD.--April 1922 to September 1931, August 1958 to current year. Monthly discharge only for some periods, published in WSP 1308.
GAGE.--Water-stage recorder. Datum of gage is 510.20 ft above mean sea level. Prior to June 25, 1923, and Nov. 28, 1923, to Sept. 30, 1931, nonrecording gage; June 25, 1923, to Oct. 8, 1928, and Aug. 29, 1958, to Oct. 1, 1967, water-stage recorder at site of former bridge on old channel 0.6 mile downstream at same datum. Oct. 6, 1967, to Mar. 11, 1968, nonrecording gage at present site and datum.
AVERAGE DISCHARGE.--22 years (1922-31, 1958-71), 67.7 cfs (8.76 inches per year, 49,050 acre-ft per year); median of yearly mean discharge, 52 cfs (6.7 inches per year, 37,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,250 cfs Dec. 11 (gage height, 9.73 ft); maximum gage height, 12.04 ft Feb. 18 (backwater from ice); no flow Aug. 18 to Sept. 4, Sept. 24.
Period of record: Maximum discharge not determined, occurred Nov. 17, 1928; maximum discharge recorded, 6,620 cfs Oct. 1, 1927 (gage height, 13.85 ft, at former site 0.6 mile downstream); no flow at times most years.
Flood of June 9, 1905, reached a stage of 20.6 ft, from floodmarks, at former site 0.6 mile downstream (discharge, 33,000 cfs, estimated on basis of velocity-area study).
REMARKS.--Records fair except those for winter periods, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Sept. 19-30; stage-discharge relation affected by ice Nov. 23, 24, Dec. 7, 8, 14, 15, Dec. 20 to Mar. 5).

Oct. 1 to Feb. 18				Feb. 19 to Sept. 30			
4.2	3.5	5.4	90	3.65	0	4.5	34
4.4	9.3	6.0	184	3.7	.60	5.0	79
4.6	18	7.0	410	3.8	2.6	6.0	218
4.8	30	9.0	1,000	3.9	4.8	7.0	420
5.0	46			4.0	7.8	9.0	980
				4.2	16		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	23	16	8.0	7.0	130	15	6.3	56	1.8	.60	0
2	37	18	15	10	7.6	110	14	6.2	388	1.8	.22	0
3	29	15	15	30	8.0	95	12	5.4	56	1.8	.22	0
4	24	14	14	170	8.2	80	11	5.1	26	2.1	.22	0
5	21	14	12	148	6.6	66	9.3	6.0	17	2.3	.36	109
6	21	13	9.4	50	5.7	98	9.7	13	12	1.8	3.9	15
7	21	12	10	30	5.0	81	9.5	16	8.4	1.8	2.5	4.0
8	17	11	11	20	4.5	74	9.0	10	6.9	1.8	1.8	1.0
9	27	81	12	15	4.8	63	7.8	9.1	5.9	31	1.1	.22
10	39	69	22	13	6.0	72	7.2	7.3	5.9	228	.59	23
11	36	42	781	12	8.0	172	7.4	7.1	5.6	365	.89	8.5
12	22	26	409	11	25	500	7.8	6.8	5.7	52	2.2	2.7
13	18	19	119	11	70	276	8.7	6.0	6.6	17	1.5	1.1
14	15	16	52	10	180	294	8.5	5.4	91	8.7	.49	.50
15	13	14	35	10	200	352	7.1	5.4	90	5.8	.01	.30
16	12	12	71	9.6	223	153	6.6	5.7	31	4.4	.03	.25
17	11	12	162	9.5	350	84	6.7	5.6	9.0	3.4	.22	.15
18	10	11	168	9.3	600	68	6.5	16	291	7.4	0	.10
19	9.0	15	123	9.1	740	71	6.5	16	109	23	0	1.3
20	9.0	231	60	9.0	380	70	6.6	8.2	27	4.2	0	.85
21	8.4	143	25	9.7	150	52	7.9	5.8	12	2.9	0	.22
22	8.0	51	16	10	125	38	6.8	5.6	6.7	2.3	0	.02
23	16	30	13	11	140	30	5.7	41	5.1	2.1	0	.01
24	101	23	12	11	130	24	5.3	61	3.6	2.0	0	0
25	71	22	11	12	165	23	5.0	19	3.3	2.2	0	3.8
26	33	22	10	11	350	22	4.6	14	3.0	1.9	0	3.4
27	98	21	9.0	9.9	400	22	12	10	2.5	.98	0	2.2
28	267	17	8.2	9.1	160	21	12	7.3	2.0	1.2	0	1.4
29	167	16	7.8	8.5	------	19	7.5	6.2	1.8	1.8	0	.02
30	56	16	7.4	8.0	------	18	6.6	5.5	1.8	1.4	0	.01
31	32	------	7.0	7.5	------	16	------	5.3	------	.60	0	------
TOTAL	1,292.4	1,029	2,242.8	702.2	4,459.4	3,194	250.3	347.3	1,289.8	784.48	16.85	179.05
MEAN	41.7	34.3	72.3	22.7	159	103	8.34	11.2	43.0	25.3	.54	5.97
MAX	267	231	781	170	740	500	15	61	388	365	3.9	109
MIN	8.0	11	7.0	7.5	4.5	16	4.6	5.1	1.8	.60	0	0
CFSM	.40	.33	.69	.22	1.51	.98	.08	.11	.41	.24	.005	.06
IN.	.46	.36	.79	.25	1.58	1.13	.09	.12	.46	.28	.005	.06
AC-FT	2,560	2,040	4,450	1,390	8,850	6,340	496	689	2,560	1,560	33	355

CAL YR 1970 TOTAL 48,857.41 MEAN 134 MAX 4,830 MIN .80 CFSM 1.28 IN 17.31 AC-FT 96,910
WTR YR 1971 TOTAL 15,787.58 MEAN 43.3 MAX 781 MIN 0 CFSM .41 IN 5.59 AC-FT 31,310

PEAK DISCHARGE (BASE 2,000 CFS).--No peak above base.

05494300 FOX RIVER AT BLOOMFIELD, IOWA

LOCATION.--Lat 40°46'10", long 92°25'05", in SW1/4 SE1/4 sec.13, T.69 N., R.14 W., Davis County, on left bank 15 ft downstream from bridge on county highway V20, 1.3 miles northwest of county courthouse at Bloomfield, and 8.6 miles downstream from North Fox Creek.
DRAINAGE AREA.--87.7 sq mi.
PERIOD OF RECORD.--October 1957 to current year.
GAGE.--Water-stage recorder. Datum of gage is 755.57 ft above mean sea level.
AVERAGE DISCHARGE.--14 years, 46.2 cfs (7.15 inches per year, 33,470 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,400 cfs Oct. 9 (gage height, 21.46 ft); minimum daily, 0.08 cfs Sept. 13-17.
Period of record: Maximum discharge, 8,600 cfs May 6, 1960 (gage height, 24.02 ft), from rating curve extended above 3,400 cfs on basis of slope-area measurement of peak flow; no flow at times most years.
Flood of June 9, 1905, and June 18, 1946 exceeded all other known floods at this location (stage and discharge unknown).
REMARKS.--Records fair except those for winter periods, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	20	20	7.0	6.6	40	12	4.3	1.2	.70	.23	1.0
2	14	19	16	6.3	6.2	30	11	5.8	1.2	.60	.23	.90
3	11	18	15	20	6.0	23	9.3	5.3	1.1	.75	.23	.90
4	9.4	17	13	40	6.5	19	8.7	4.6	1.2	2.2	.23	.90
5	8.9	16	12	40	7.0	17	8.6	5.4	1.3	3.1	.23	10
6	14	16	10	15	6.2	16	8.6	89	1.2	1.7	.23	4.8
7	11	16	9.0	11	5.8	17	8.3	43	1.2	1.4	.15	2.0
8	143	16	10	9.0	5.6	19	7.7	21	1.0	.80	.15	1.0
9	3,140	89	13	10	5.4	22	6.4	12	1.2	2.0	.15	.70
10	212	83	348	11	5.8	30	5.6	7.3	1.1	6.2	.15	.40
11	65	39	1,850	11	20	487	5.1	6.1	1.2	5.5	.30	.20
12	42	28	192	10	40	412	5.6	5.9	1.2	1.5	.20	.15
13	32	28	96	9.0	55	173	6.0	4.7	1.2	1.0	.20	.08
14	26	27	55	10	65	183	6.1	3.5	1.0	1.0	.20	.08
15	20	21	45	9.7	58	154	5.8	2.8	1.4	.90	.20	.08
16	17	19	66	9.4	70	72	5.5	2.6	1.3	.90	.15	.08
17	15	19	165	9.2	500	45	5.7	2.7	1.2	.80	.15	.08
18	15	18	288	9.0	1,500	49	6.0	2.8	1.1	1.4	.15	1.7
19	14	21	186	8.8	700	60	6.2	14	1.0	1.0	.15	2.9
20	14	243	40	8.6	250	43	6.2	16	.85	.90	.15	1.0
21	13	60	20	8.4	60	36	7.1	5.1	.75	.80	4.0	.50
22	24	35	17	8.8	45	31	5.6	3.6	.70	.70	2.7	.50
23	188	23	18	9.8	30	24	4.5	14	.80	1.0	2.0	.75
24	166	17	16	11	14	23	4.6	45	.90	1.0	7.0	.75
25	59	15	13	13	150	20	3.7	71	.80	1.4	3.5	2.3
26	37	20	10	10	500	20	5.7	9.3	.60	1.1	3.0	.75
27	57	20	7.0	8.0	150	20	38	3.3	.65	.90	2.0	.39
28	75	18	5.5	9.0	65	19	27	2.1	.65	.70	2.0	.70
29	48	19	5.0	11	------	16	8.6	1.4	.65	.40	2.0	.40
30	32	20	5.5	9.0	------	13	5.2	1.2	.70	.23	1.5	.35
31	25	------	6.0	7.0	------	13	------	1.1	------	.23	1.0	------
TOTAL	4,562.3	1,020	3,572.0	369.0	4,333.1	2,146	254.4	415.9	30.35	42.81	34.53	36.34
MEAN	147	34.0	115	11.9	155	69.2	8.48	13.4	1.01	1.38	1.11	1.21
MAX	3,140	243	1,850	40	1,500	487	38	89	1.4	6.2	7.0	10
MIN	8.9	15	5.0	6.3	5.4	13	3.7	1.1	.60	.23	.15	.08
CFSM	1.68	.39	1.31	.14	1.77	.79	.10	.15	.01	.02	.01	.01
IN.	1.94	.43	1.52	.16	1.84	.91	.11	.18	.01	.02	.01	.02
AC-FT	9,050	2,020	7,090	732	8,590	4,260	505	825	60	85	68	72

CAL YR 1970 TOTAL 35,156.50 MEAN 96.3 MAX 3,470 MIN .55 CFSM 1.10 IN 14.91 AC-FT 69,730
WTR YR 1971 TOTAL 16,816.73 MEAN 46.1 MAX 3,140 MIN .08 CFSM .53 IN 7.13 AC-FT 33,360

PEAK DISCHARGE (BASE, 2,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	1200	21.46	4,400	2-18	--	--	* 2,100
12-11	0345	18.63	3,190				

* About

06483270 ROCK RIVER AT ROCK RAPIDS, IOWA

LOCATION.--Lat 43°26'13", long 96°09'58", in NE1/4 SW1/4 sec.33, T.100 N., R.45 W., Lyon County, on right bank at dam on north side of city park in Rock Rapids, 0.3 mile upstream from Tom Creek, 0.5 mile northeast of junction of U.S. Highways 75 and 9, and at mile 42.8.
DRAINAGE AREA.--788 sq mi.
PERIOD OF RECORD.--August 1959 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,331.55 ft above mean sea level.
AVERAGE DISCHARGE.--12 years, 172 cfs (2.96 inches per year, 124,600 acre-ft per year); median of yearly mean discharges, 110 cfs (1.9 inches per year, 79,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 6,250 cfs Feb. 19 (gage height, 5.30 ft); minimum daily, 6.9 cfs Sept. 14.
Period of record: Maximum discharge, 29,000 cfs Apr. 8, 1969 (gage height, 10.23 ft); minimum daily, 0.8 cfs Feb. 1-5, 1965.
REMARKS.--Records fair except those for winter period, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	96	112	22	12	500	500	163	50	225	40	14
2	12	100	110	21	12	350	400	147	50	250	36	12
3	11	97	100	20	12	250	320	128	50	197	33	11
4	11	88	90	19	12	200	290	116	55	209	30	13
5	12	95	80	18	11	180	265	112	183	205	32	12
6	11	101	75	17	11	170	240	100	353	177	30	13
7	17	101	85	16	11	160	211	94	1,030	137	28	9.0
8	50	114	95	16	11	160	196	88	1,570	114	26	8.8
9	79	141	85	16	11	160	187	76	1,210	111	25	14
10	103	270	50	16	11	160	173	71	2,080	313	22	19
11	114	409	20	16	11	160	166	66	1,230	400	21	13
12	122	366	35	16	10	200	164	58	869	470	19	9.6
13	142	314	50	15	10	600	167	57	594	380	15	8.5
14	141	268	65	15	10	1,400	147	49	423	282	15	6.9
15	121	200	70	15	9.0	900	146	47	319	214	15	7.6
16	98	180	60	15	10	600	144	41	245	175	15	8.6
17	83	205	55	15	15	450	144	36	216	152	15	8.7
18	72	189	50	14	100	346	147	37	217	130	17	8.9
19	65	179	45	14	4,000	238	144	48	210	112	23	8.8
20	65	175	42	14	2,000	249	155	47	240	106	13	9.3
21	55	172	40	14	600	245	174	42	314	94	11	9.5
22	55	100	38	14	350	200	204	42	248	76	11	12
23	50	90	36	14	300	160	211	50	221	76	11	13
24	50	86	34	13	290	140	188	55	189	68	10	13
25	55	102	32	13	285	140	171	166	130	63	11	15
26	64	95	30	13	280	140	154	132	120	57	12	18
27	74	85	28	13	500	140	152	106	103	54	13	17
28	87	83	26	13	450	160	154	82	97	53	13	17
29	93	84	25	13	------	400	177	65	87	48	13	15
30	95	92	24	12	------	1,200	178	58	136	46	14	15
31	94	------	23	12	------	800	------	55	------	45	15	------
TOTAL	2,117	4,677	1,710	474	9,344.0	11,158	6,069	2,434	12,839	5,039	604	360.2
MEAN	68.3	156	55.2	15.3	334	360	202	78.5	428	163	19.5	12.0
MAX	142	409	112	22	4,000	1,400	500	166	2,080	470	40	19
MIN	11	83	20	12	9.0	140	144	36	50	45	10	6.9
CFSM	.09	.20	.07	.02	.42	.46	.26	.10	.54	.21	.02	.02
IN.	.10	.22	.08	.02	.44	.53	.29	.11	.61	.24	.03	.02
AC-FT	4,200	9,280	3,390	940	18,530	22,130	12,040	4,830	25,470	9,990	1,200	714

CAL YR 1970 TOTAL 50,775.0 MEAN 139 MAX 2,360 MIN 3.8 CFSM .18 IN 2.40 AC-FT 100,700
WTR YR 1971 TOTAL 56,825.2 MEAN 156 MAX 4,000 MIN 6.9 CFSM .20 IN 2.68 AC-FT 112,700

PEAK DISCHARGE (BASE, 2,000 CFS).--Feb. 19 (time unknown) 6,250 cfs (5.30 ft); June 10 (1100) 2,450 cfs (3.59 ft).

06483500 ROCK RIVER NEAR ROCK VALLEY, IOWA

LOCATION.--Lat 43°11'58", long 96°20'22", in NW1/4 NE1/4 sec.25, T.97 N., R.47 W., Sioux County, on downstream side of bridge on U.S. Highway 18, 1.8 miles west of Rock Valley, and at mile 15.9.
DRAINAGE AREA.--1,600 sq mi.
PERIOD OF RECORD.--June 1948 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,211.81 ft above mean sea level. Prior to Aug. 13, 1952, non-recording gage (June 4, 1949, to Aug. 12, 1952, supplementary water-stage recorder operating above 6.2 ft gage height) at same site and datum.
AVERAGE DISCHARGE.--22 years, 304 cfs (2.58 inches per year, 220,200 acre-ft per year); median of yearly mean discharges, 230 cfs (2.0 inches per year, 167,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 9,060 cfs Feb. 19 (gage height, 13.73 ft); minimum daily, 20 cfs Jan. 27 to Feb. 9.
Period of record: Maximum discharge, 40,400 cfs Apr. 7, 1969 (gage height, 17.32 ft); no flow Feb. 20-23, Feb. 27 to Mar. 8, 1959.
Flood in 1897 reached a stage of 17.0 ft (discharge not determined), from information by State Highway Commission.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1439: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	138	210	34	20	700	1,400	249	130	294	100	32
2	29	142	210	33	20	550	960	233	121	347	94	31
3	26	147	200	32	20	520	764	218	120	331	88	31
4	24	147	170	31	20	480	636	197	519	301	84	30
5	23	145	160	30	20	460	575	191	708	329	81	30
6	27	151	160	28	20	400	530	195	840	370	77	30
7	33	160	160	28	20	350	480	177	2,420	311	72	31
8	69	175	170	27	20	320	444	166	3,520	262	68	30
9	102	201	160	27	20	330	411	156	3,070	231	69	30
10	128	227	150	27	22	342	394	153	3,330	396	65	30
11	149	334	120	27	24	337	368	153	3,640	555	63	32
12	166	423	90	27	26	347	352	144	1,990	676	59	33
13	177	397	105	26	23	423	337	140	1,270	625	59	31
14	197	363	110	26	22	1,240	324	137	908	492	54	30
15	199	300	100	25	25	2,400	313	133	728	392	52	30
16	183	280	90	25	30	1,100	303	132	606	334	52	29
17	162	294	80	24	40	748	294	123	523	289	49	30
18	147	294	70	24	60	660	289	112	468	255	50	30
19	135	275	66	24	3,000	400	284	113	423	227	60	30
20	126	269	62	24	7,160	410	280	102	411	208	66	29
21	118	258	58	23	2,470	380	296	100	453	197	60	29
22	113	180	54	23	684	350	306	95	483	177	49	29
23	110	160	50	22	468	310	316	90	414	166	46	30
24	106	150	47	22	440	300	306	125	363	153	42	31
25	104	170	45	21	650	310	286	160	324	142	39	33
26	109	170	43	21	800	316	266	273	294	130	38	34
27	121	170	41	20	700	331	258	262	269	130	36	34
28	123	180	39	20	750	492	249	229	244	120	34	34
29	130	190	38	20	------	1,140	249	201	242	110	33	34
30	140	210	37	20	------	2,310	255	181	273	104	32	34
31	140	------	35	20	------	2,120	------	160	------	101	32	------
TOTAL	3,449	6,700	3,130	781	17,574	20,876	12,545	5,100	29,104	8,755	1,803	931
MEAN	111	223	101	25.2	628	673	418	165	970	282	58.2	31.0
MAX	199	423	210	34	7,160	2,400	1,400	273	3,640	676	100	34
MIN	23	138	35	20	20	300	249	90	120	101	32	29
CFSM	.07	.14	.06	.02	.39	.42	.26	.10	.61	.18	.04	.02
IN.	.08	.16	.07	.02	.41	.49	.29	.12	.68	.20	.04	.02
AC-FT	6,840	13,290	6,210	1,550	34,860	41,410	24,880	10,120	57,730	17,370	3,580	1,850

CAL YR 1970 TOTAL 98,682 MEAN 270 MAX 6,450 MIN 18 CFSM .17 IN 2.29 AC-FT 195,700
WTR YR 1971 TOTAL 110,748 MEAN 303 MAX 7,160 MIN 20 CFSM .19 IN 2.57 AC-FT 219,700

PEAK DISCHARGE (BASE, 3,000 CFS).--Feb. 19 (2000) 9,060 cfs (13.73 ft); June 10 (1800) 3,930 cfs (10.72 ft).

06485500 BIG SIOUX RIVER AT AKRON, IOWA

LOCATION.--Lat 42°49'42", long 96°33'45", in NW1/4 SW1/4 sec.31, T.93 N., R.48 W., Plymouth County, Iowa on left bank at west edge of Akron, 0.6 mile downstream from bridge on State Highway 48, and 2.3 miles upstream from Union Creek.
DRAINAGE AREA.--9,030 sq mi, approximately, of which about 1,970 sq mi is probably noncontributing.
PERIOD OF RECORD.--October 1928 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,118.90 ft above mean sea level. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft upstream at same datum.
AVERAGE DISCHARGE.--43 years, 849 cfs (615,100 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 7,310 cfs June 11 (gage height, 15.69 ft); maximum gage height, 17.16 ft Feb. 22 (backwater from ice); minimum daily discharge, 60 cfs Feb. 8,9.
Period of record: Maximum discharge, 80,800 cfs Apr. 9, 1969 (gage height, 22.99 ft); minimum daily, 7 cfs Feb. 26-28, 1936.
REMARKS.--Records good except those for the winter months, which are poor. Records of chemical analyses for the water year 1971 are published in Part 2 of Water Resources Data for South Dakota, 1971.
REVISIONS (WATER YEARS).--WSP 1309: 1929 (M), 1931-33 (M), 1936 (M), 1938 (M), 1940 (M). WSP 1389: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	320	190	190	75	1,750	3,450	713	386	1,430	325	129
2	175	328	185	180	80	2,000	2,650	701	373	1,770	311	127
3	172	340	180	160	85	1,650	2,100	690	370	1,300	294	123
4	170	342	170	130	85	1,580	1,740	674	1,040	1,060	279	125
5	172	348	160	110	80	1,430	1,520	659	2,580	1,170	270	126
6	173	352	165	95	70	1,340	1,380	657	1,870	1,160	260	126
7	181	352	180	100	65	1,160	1,260	641	3,450	1,200	250	123
8	252	372	190	105	60	1,040	1,180	599	4,900	1,060	237	148
9	292	422	190	115	60	944	1,110	566	5,330	924	224	142
10	301	425	190	115	65	889	1,050	539	6,690	1,400	213	132
11	379	465	185	110	70	877	1,020	516	6,900	2,610	202	130
12	403	542	180	105	65	949	976	487	5,690	1,780	197	128
13	394	647	175	100	65	882	948	467	3,760	1,630	191	123
14	380	550	170	95	70	999	917	449	2,540	1,410	184	121
15	375	450	175	95	75	2,970	892	438	1,980	1,180	179	117
16	359	400	180	100	110	4,090	878	417	1,630	998	173	112
17	335	350	185	100	180	3,520	861	404	1,380	878	170	114
18	326	370	180	95	625	2,880	847	392	1,240	783	164	122
19	309	380	170	85	4,000	2,510	836	384	1,110	710	165	118
20	294	350	180	90	4,500	2,080	826	376	1,030	654	180	110
21	280	325	185	90	5,500	2,200	840	365	1,000	609	182	108
22	269	250	180	95	5,900	2,250	847	352	1,050	576	179	112
23	260	140	180	100	3,500	2,060	858	356	1,030	549	166	110
24	258	170	175	95	900	1,750	833	372	924	511	157	107
25	254	190	180	90	700	1,500	808	379	826	466	151	115
26	254	185	190	90	850	1,340	770	416	740	441	144	127
27	268	170	180	85	1,050	1,260	758	489	692	416	137	134
28	276	180	170	85	1,200	1,750	740	454	650	403	135	132
29	294	190	170	80	------	2,000	734	429	617	390	133	127
30	304	190	175	75	------	2,820	719	409	784	359	130	125
31	312	------	185	70	------	3,710	------	400	------	338	130	------
TOTAL	8,647	10,095	5,550	3,230	30,085	58,180	34,348	15,190	62,562	30,165	6,112	3,693
MEAN	279	337	179	104	1,074	1,877	1,145	490	2,085	973	197	123
MAX	403	647	190	190	5,900	4,090	3,450	713	6,900	2,610	325	148
MIN	170	140	160	70	60	877	719	352	370	338	130	107
AC-FT	17,150	20,020	11,010	6,410	59,670	115,400	68,130	30,130	124,100	59,830	12,120	7,330

CAL YR 1970 TOTAL 305,070 MEAN 836 MAX 7,380 MIN 100 AC-FT 605,100
WTR YR 1971 TOTAL 267,857 MEAN 734 MAX 6,900 MIN 60 AC-FT 531,300

PEAK DISCHARGE (BASE, 3,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-22	--	--	about 6,200	3-31	1900	11.26	3,890
3-16	2000	11.79	4,240	6-11	0200	15.69	7,310

06486000 MISSOURI RIVER AT SIOUX CITY, IOWA

LOCATION.--Lat 42°29'10", long 96°24'47", in NW1/4 SE1/4 sec.16, T.29 N., R.9 E., sixth principal meridan, Dakota County, Nebraska, on right bank on upstream side of bridge on U.S. Highway 77 at South Sioux City, Nebraska, 2.0 miles downstream from Big Sioux River, and at mile 732.3.
DRAINAGE AREA.--314,600 sq mi, approximately.
PERIOD OF RECORD.--October 1897 to current year in reports of Geological Survey. Prior to October 1928 and October 1931 to September 1938, monthly discharges only published in WSP 1310. January 1879 to December 1890 (monthly discharges only) in House Document 238, 73rd Congress, 2d session, Missouri River. Gage-height records collected in this vicinity September 1878 to December 1899 are contained in reports of Missouri River Commission and since July 1889 are contained in reports of U.S. Weather Bureau.
GAGE.--Water-stage recorder. Datum of gage is 1,056.98 ft above mean sea level. Sept. 2, 1878, to Dec. 31, 1905, nonrecording gages at various locations within 1.7 miles of present site and at various datums. Jan. 1, 1906, to Feb. 14, 1935, nonrecording gage, and Feb. 15, 1935 to Sept. 30, 1969, water-stage recorder at present site at datum 19.98 ft higher, and Oct. 1, 1969 to Sept. 30, 1970 at datum 20.00 ft higher.
AVERAGE DISCHARGE.--74 years, 31,780 cfs (23,020,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 80,000 cfs Feb. 19 (gage height, 30.65 ft, backwater from ice); minimum daily, 13,500 cfs Jan. 16-19; minimum gage height, 15.48 ft Dec. 24.
Period of record: Maximum discharge, 441,000 cfs Apr. 14, 1952 (gage height, 24.28 ft); minimum, 2,500 cfs Dec. 29, 1941; minimum gage height, -6.60 ft Dec. 14, 1968, result of freezeup.
REMARKS.--Records good except those for winter period, which are poor. Flow partly regulated by upstream main-stem reservoirs.
REVISIONS (WATER YEARS).--WSP 716: 1929-30. WSP 876: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40,000	42,700	38,500	18,500	14,000	24,000	42,700	36,400	48,200	48,600	49,500	47,900
2	40,000	42,700	38,200	18,400	14,000	24,600	40,900	37,000	47,900	46,600	49,200	47,900
3	40,000	42,400	38,500	18,100	16,000	24,000	39,400	36,700	47,900	46,900	49,200	48,600
4	39,700	42,400	35,800	17,500	18,000	22,800	39,700	36,400	49,200	46,900	48,900	49,500
5	41,200	42,100	33,100	17,200	18,000	23,000	39,400	36,100	56,700	47,600	48,600	49,800
6	40,900	41,800	29,800	17,000	17,000	24,000	38,500	36,700	56,000	48,200	48,600	49,800
7	42,400	42,400	26,000	14,500	16,500	21,400	37,600	36,400	58,600	47,600	48,600	49,800
8	44,600	43,400	23,700	14,000	16,000	20,600	37,600	36,400	56,000	48,600	48,200	49,800
9	43,700	44,300	21,400	14,500	15,500	23,500	37,000	37,300	61,700	49,500	48,200	49,800
10	42,400	43,400	19,800	15,000	16,000	24,000	37,000	42,100	69,800	51,800	48,900	49,500
11	42,400	43,400	19,000	15,000	17,000	24,400	37,000	47,900	67,600	53,400	48,900	48,900
12	43,000	43,400	19,500	15,000	17,500	22,600	36,700	50,200	64,800	53,100	49,200	48,600
13	43,000	43,400	19,800	15,000	17,000	23,300	36,700	50,200	66,200	51,800	48,900	48,200
14	43,000	43,400	20,000	14,500	17,000	23,500	36,400	48,900	63,800	51,500	48,200	48,900
15	43,000	42,700	19,500	14,000	17,000	23,000	36,400	48,200	59,000	49,800	48,600	48,900
16	42,400	42,400	19,700	13,500	18,000	23,300	36,100	48,200	56,400	50,200	48,600	49,200
17	42,700	41,500	19,800	13,500	18,000	26,300	36,400	48,600	51,200	49,200	48,600	49,500
18	42,700	40,900	20,200	13,500	40,000	30,100	36,400	48,200	45,400	49,500	48,600	49,200
19	43,000	41,200	19,500	13,500	60,000	34,300	36,100	46,600	49,600	49,200	49,200	48,900
20	43,400	40,600	18,900	14,500	48,600	36,400	36,400	46,000	51,800	48,600	48,900	48,900
21	43,000	41,200	18,700	15,000	44,000	38,200	36,400	46,600	49,500	48,900	48,600	48,900
22	42,400	41,500	18,900	15,500	30,100	38,800	36,700	47,600	49,500	49,200	48,900	48,600
23	42,400	40,300	19,500	15,500	27,800	39,700	37,000	49,200	49,800	49,200	48,600	48,600
24	42,100	39,700	16,600	15,500	29,800	40,300	36,700	49,500	50,500	49,200	48,600	47,900
25	42,100	39,700	17,200	16,000	29,800	40,300	36,400	48,900	50,200	49,500	48,600	48,900
26	42,100	38,500	17,300	16,000	28,400	40,300	36,700	50,800	49,800	49,200	48,900	49,500
27	42,100	38,200	17,900	16,000	26,800	40,300	37,300	51,200	49,500	48,900	49,500	49,800
28	41,800	37,600	17,300	16,000	23,700	40,300	36,700	50,500	49,200	49,200	49,200	49,200
29	41,800	37,300	16,700	16,000	------	40,000	36,100	49,800	49,500	48,900	48,600	48,200
30	42,400	37,600	17,800	15,500	------	40,300	36,100	48,200	50,500	48,900	48,200	47,900
31	42,700	------	18,400	15,000	------	41,800	------	48,200	------	48,200	48,200	------
TOTAL	1,308.4M	1,242.1M	697,000	478,700	671,500	939,400	1,120.5M	1,395.0M	1,625.8M	1,527.9M	1,511.5M	1,469.1M
MEAN	42,210	41,400	22,480	15,440	23,980	30,300	37,350	45,000	54,190	49,290	48,760	48,970
MAX	44,600	44,300	38,500	18,500	60,000	41,800	42,700	51,200	69,800	53,400	49,500	49,800
MIN	39,700	37,300	16,600	13,500	14,000	20,600	36,100	36,100	45,400	46,600	48,200	47,900
AC-FT	2,595M	2,464M	1,382M	949,500	1,332M	1,863M	2,223M	2,767M	3,225M	3,031M	2,998M	2,914M

CAL YR 1970 TOTAL 12,169,600 MEAN 33,340 MAX 45,600 MIN 9,000 AC-FT 24,140,000
WTR YR 1971 TOTAL 13,986,900 MEAN 38,320 MAX 69,800 MIN 13,500 AC-FT 27,740,000

M Expressed in thousands.

06600100 FLOYD RIVER AT ALTON, IOWA

LOCATION.--Lat 42°58'55", long 96°00'03", in NE1/4 NE1/4 sec.11, T.94 N., R.44 W., Sioux County, on left bank at downstream side of Chicago and North Western Railway Co. bridge at east edge of Alton, 34.3 miles upstream from West Branch Floyd River and at mile 58.1 (revised).
DRAINAGE AREA.--265 sq mi.
PERIOD OF RECORD.--October 1955 to current year. Prior to December 1956, monthly discharge only, published in WSP 1730.
GAGE.--Water-stage recorder. Datum of gage is 1,269.55 ft above mean sea level.
AVERAGE DISCHARGE.--16 years, 39.7 cfs (2.03 inches per year, 28,760 acre-ft per year); median of yearly mean discharge, 29 cfs (1.5 inches per year, 21,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 4,000 cfs Feb. 19 (gage height, 17.17 ft, backwater from ice); minimum daily, 0.39 cfs Jan. 17, 18.
Period of record: Maximum discharge, 12,200 cfs Mar. 28, 1962 (gage height, 18.35 ft); no flow at times in 1956, 1958-59, 1965, 1968.
Flood in June 1953 reached a discharge of about 45,500 cfs, from information by Corps of Engineers.
REMARKS.--Records good except those for winter period which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 1-27, Jan. 10-14; stage-discharge relation affected by ice Nov. 22-24, Dec. 10 to Jan. 9, Jan 19 to Mar. 9, Mar. 16-19).

Oct. 1 to Feb. 20

6.14	.27	6.26	2.7
6.16	.54	6.4	8.0
6.20	1.3	6.8	28

Feb. 21 to Sept. 30

6.14	.90	8.0	147
6.16	1.2	10.0	404
6.2	2.2	12.0	820
6.3	5.5	14.0	1,500
6.5	16	15.0	1,970
6.8	36	16.0	2,800
7.3	78		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	9.8	14	1.4	1.0	46	150	19	12	72	13	3.5
2	4.8	10	12	1.4	1.0	44	93	17	12	57	12	3.1
3	3.3	11	14	1.4	1.0	40	73	16	14	46	11	2.5
4	3.3	12	7.4	1.4	1.0	36	65	15	1,320	40	9.9	2.5
5	3.3	12	11	1.4	1.0	35	54	15	2,060	38	9.2	2.8
6	2.7	12	8.1	1.4	1.0	34	46	16	1,080	36	9.0	1.9
7	3.0	12	8.2	1.4	1.0	35	43	16	1,860	35	9.0	2.2
8	11	12	7.9	1.4	1.0	30	41	14	2,550	33	8.9	1.9
9	14	16	8.7	1.4	1.0	30	39	13	1,230	30	9.4	1.7
10	13	17	6.5	1.5	1.0	30	36	13	631	45	10	1.5
11	15	18	2.2	1.5	1.0	33	34	33	447	161	9.5	1.7
12	17	19	2.4	1.9	1.0	41	33	12	290	120	9.2	1.7
13	15	18	4.0	1.5	1.0	46	30	15	245	86	8.8	1.2
14	13	17	4.4	.86	1.0	84	29	15	210	64	8.0	1.1
15	11	14	4.4	.68	1.0	69	28	12	176	52	7.4	.90
16	9.4	14	4.2	.54	10	42	28	11	145	43	7.2	.90
17	9.4	16	4.2	.39	50	40	27	5.2	126	36	7.1	1.1
18	8.4	16	4.0	.39	600	34	25	5.2	117	32	6.4	1.1
19	7.2	18	4.0	.50	3,500	34	24	12	113	27	7.4	.90
20	6.8	17	4.0	.50	1,800	28	24	14	97	24	9.6	.90
21	6.8	17	3.8	.50	400	26	29	12	83	22	11	1.1
22	6.8	7.5	3.8	.50	240	26	30	10	76	23	9.5	1.7
23	7.2	5.0	3.6	.56	100	22	27	16	69	41	7.2	2.5
24	7.6	9.0	3.5	.60	93	22	23	30	68	33	5.7	2.5
25	7.2	9.4	2.4	.80	90	22	21	28	58	24	4.6	3.7
26	8.0	9.8	2.4	.90	70	22	20	23	53	19	4.7	4.9
27	8.9	9.4	2.4	.90	50	57	22	18	47	17	4.2	5.2
28	9.4	9.8	2.4	.95	48	179	25	16	42	18	4.5	5.0
29	9.4	11	2.4	.95	------	239	24	14	44	16	4.5	4.0
30	9.8	12	2.0	.98	------	463	22	13	70	14	3.6	4.1
31	9.8	------	1.7	1.0	------	279	------	12	------	13	3.6	------
TOTAL	266.7	390.7	166.0	31.50	7,066.0	2,168	1,165	480.4	13,345	1,317	245.1	69.80
MEAN	8.60	13.0	5.35	1.02	252	69.9	38.8	15.5	445	42.5	7.91	2.33
MAX	17	19	14	1.9	3,500	463	150	33	2,550	161	13	5.2
MIN	2.7	5.0	1.7	.39	1.0	22	20	5.2	12	13	3.6	.90
CFSM	.03	.05	.02	.004	.95	.26	.15	.06	1.68	.16	.03	.009
IN.	.04	.05	.02	.004	.99	.30	.16	.07	1.87	.18	.03	.009
AC-FT	529	775	329	62	14,020	4,300	2,310	953	26,470	2,610	486	138

CAL YR 1970 TOTAL 13,244.18 MEAN 36.3 MAX 2,020 MIN .18 CFSM .14 IN 1.86 AC-FT 26,270
WTR YR 1971 TOTAL 26,711.20 MEAN 73.2 MAX 3,500 MIN .39 CFSM .28 IN 3.75 AC-FT 52,980

PEAK DISCHARGE (BASE, 800 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	--	--	* 4,000	6-7	2200	16.46	3,360
6-5	0200	15.62	2,240				

* About

06600300 WEST BRANCH FLOYD RIVER NEAR STRUBLE, IOWA

LOCATION.--Lat 42°55'15", long 96°10'30", in NE1/4 NE1/4 sec.32, T.94 N., R.45 W., Sioux County, on right bank at downstream side of bridge on county highway B62, 0.2 mile west of U.S. Highway 75, 0.8 mile downstream from Orange City slough, 2.2 miles northeast of Struble, 14 miles upstream from Floyd River, and at mile 39.3.
DRAINAGE AREA.--181 sq mi.
PERIOD OF RECORD.--October 1955 to current year. Prior to December 1955, monthly discharge only, published in WSP 1730.
GAGE.--Water-stage recorder. Datum of gage is 1,239.40 ft above mean sea level (State Highway Commission bench mark).
AVERAGE DISCHARGE.--16 years, 27.5 cfs (2.06 inches per year, 19,920 acre-ft per year); median of yearly mean discharges, 20 cfs (1.5 inches per year, 14,500 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 7,500 cfs Feb. 19 (gage height, 15.50 ft); minimum daily, 1.5 cfs Feb. 7-10.
Period of record: Maximum discharge, 8,060 cfs Mar. 28, 1962 (gage height, 15.63 ft); no flow at times most years.
REMARKS.--Records fair except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Mar. 12-22, 26, Apr. 24 to May 27; stage-discharge relation affected by ice Nov. 15, 16, 22-29, Dec. 3 to Feb. 18, Feb. 21 to Mar. 11, Mar. 23-25).

Oct. 1 to Mar. 11

3.5	4.9	8.0	370
3.8	10	10.0	750
4.3	25	12.0	1,330
4.8	45	14.0	2,450
5.5	87	14.5	3,100
6.5	174	15.0	4,700

Mar. 12 to Sept. 30

3.2	2.6	5.5	115
3.4	7.1	7.0	250
3.8	20	8.0	370
4.5	52		

Note.--Same as preceding table above 8.0 ft.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	13	11	5.0	1.8	22	36	13	8.7	71	11	3.4
2	6.5	14	11	5.0	1.8	20	32	12	7.7	44	10	3.6
3	6.1	13	11	4.5	1.7	18	28	11	8.6	36	9.3	3.2
4	5.9	14	10	4.0	1.7	17	26	12	19	31	8.2	3.4
5	5.8	14	10	4.0	1.6	16	24	12	22	33	7.6	3.4
6	5.9	15	10	3.5	1.6	15	22	11	20	29	7.6	3.5
7	6.8	14	10	3.5	1.5	15	21	11	19	27	7.6	3.7
8	18	15	10	3.2	1.5	15	19	11	1,070	26	7.6	3.6
9	22	23	10	3.0	1.5	16	19	12	898	24	8.0	4.0
10	18	21	9.5	2.8	1.5	17	18	12	1,400	32	9.0	3.9
11	22	19	9.0	2.8	1.6	17	19	11	322	100	8.0	5.1
12	28	18	8.5	2.8	1.6	18	17	10	273	70	7.6	4.6
13	24	17	8.0	2.6	1.6	18	17	10	186	45	7.2	4.0
14	21	16	8.0	2.6	1.8	19	17	9.1	117	32	6.8	3.8
15	18	14	8.0	2.4	2.5	12	17	8.8	95	25	6.6	3.7
16	17	15	8.0	2.4	10	14	16	8.8	80	23	6.4	3.6
17	15	15	8.0	2.2	100	12	15	8.8	69	21	6.2	3.5
18	14	15	7.5	2.2	500	12	15	8.9	67	19	6.0	3.5
19	14	17	7.5	2.0	4,000	14	15	9.3	60	18	6.9	3.5
20	14	17	7.5	2.0	742	14	17	9.0	53	17	5.8	3.5
21	15	16	7.0	2.0	65	13	21	8.4	48	16	5.1	3.5
22	15	13	7.0	2.0	64	13	17	8.5	45	17	5.8	3.5
23	15	11	7.0	2.0	62	11	16	10	41	26	5.6	3.5
24	15	9.0	6.5	2.0	55	10	16	11	39	20	4.2	3.5
25	15	10	6.5	2.0	40	9.0	15	9.6	36	17	5.1	3.5
26	15	11	6.5	1.8	30	8.5	15	8.5	33	16	4.9	3.4
27	14	12	6.0	1.8	25	80	18	8.6	31	15	3.4	3.4
28	13	13	6.0	1.8	25	171	16	8.9	28	14	3.0	3.4
29	13	12	6.0	1.8	------	99	14	9.1	31	13	3.0	3.4
30	13	11	5.5	1.8	------	63	15	8.2	205	12	3.2	3.4
31	13	------	5.5	1.8	------	42	------	8.7	------	11	3.5	------
TOTAL	444.6	437.0	252.0	83.3	5,743.3	840.5	573	310.2	5,332.0	900	200.2	109.0
MEAN	14.3	14.6	8.13	2.69	205	27.1	19.1	10.0	178	29.0	6.46	3.63
MAX	28	23	11	5.0	4,000	171	36	13	1,400	100	11	5.1
MIN	5.8	9.0	5.5	1.8	1.5	8.5	14	8.2	7.7	11	3.0	3.2
CFSM	.08	.08	.04	.01	1.13	.15	.11	.06	.98	.16	.04	.02
IN.	.09	.09	.05	.02	1.18	.17	.12	.06	1.10	.18	.04	.02
AC-FT	882	867	500	165	11,390	1,670	1,140	615	10,580	1,790	397	216

CAL YR 1970 TOTAL 9,564.7 MEAN 26.2 MAX 1,500 MIN 1.0 CFSM .14 IN 1.97 AC-FT 18,970
WTR YR 1971 TOTAL 15,225.1 MEAN 41.7 MAX 4,000 MIN 1.5 CFSM .23 IN 3.13 AC-FT 30,200

PEAK DISCHARGE (BASE, 400 CFS).--Feb. 19 (1300) 7,500 cfs (15.50 ft); June 10 (0800) 2,450 cfs (14.00 ft).

06600500 FLOYD RIVER AT JAMES, IOWA

LOCATION.--Lat 42°34'36", long 96°18'43", in SE1/4 SE1/4 sec.30, T.90 N., R.46 W., Plymouth County, on right bank at downstream side of bridge on county highway C70, 0.2 mile east of James, 14.3 miles downstream from West Branch Floyd River, and at mile 9.5 (revised).
DRAINAGE AREA.--882 sq mi.
PERIOD OF RECORD.--December 1934 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,092.59 ft above mean sea level. Prior to Sept. 11, 1938, June 9 to Nov. 5, 1953, and Oct. 1, 1955 to May 22, 1957, nonrecording gage and May 23, 1957 to Sept. 30, 1970, water-stage recorder at same site at datum 10.0 ft higher.
AVERAGE DISCHARGE.--36 years (1935-71), 177 cfs (2.73 inches per year, 128,200 acre-ft per year); median of yearly mean discharges, 140 cfs (2.2 inches per year, 101,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 13,400 cfs Feb. 19 (gage height, 28.13 ft); minimum daily, 13 cfs Feb. 8.
Period of record: Maximum discharge, 71,500 cfs June 8, 1953 (gage height, 25.3 ft, from floodmarks), from rating curve extended above 16,000 cfs on basis of contracted-opening and flow-over-embankment measurement of peak flow; minimum daily, 1 cfs Aug. 20, 27, 1936, Feb. 10-23, 1959.
REMARKS.--Records good except those for winter periods, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1240: 1935 (M), 1936, 1937-38 (M), 1942, 1945. WSP 1440: Drainage area.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Feb. 20-28, Mar. 10-28, Mar. 31 to June 8; stage-discharge relation affected by ice Nov. 22 to Dec. 1, Dec. 4 to Feb. 19, Mar. 1-9).

Oct. 1 to Feb. 17		Feb. 18 to Sept. 30			
11.2	30	10.4	28	14.5	1,110
11.5	58	10.8	78	18.0	3,050
12.0	122	11.5	199	23.0	7,550
12.5	206	12.5	432	24.0	10,000

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	63	90	22	19	150	519	96	54	435	86	44
2	35	62	84	22	18	120	345	88	50	286	82	43
3	34	63	81	22	18	100	265	84	48	238	80	40
4	34	66	52	21	17	100	226	78	105	209	75	40
5	34	63	50	21	16	100	201	80	3,380	258	72	43
6	34	64	50	20	15	110	179	74	4,980	232	69	41
7	36	63	52	20	14	110	162	72	4,280	197	68	41
8	57	62	60	20	13	120	151	70	4,970	183	68	40
9	84	76	63	20	14	150	142	65	6,990	168	67	45
10	95	88	50	20	14	139	134	64	5,180	258	64	44
11	102	84	45	20	14	146	125	70	2,910	310	60	45
12	133	84	40	20	15	149	122	86	1,460	308	56	41
13	146	82	35	20	15	162	117	70	1,780	282	56	41
14	124	80	30	20	16	170	112	59	980	230	54	39
15	108	71	28	20	18	181	111	56	746	205	54	39
16	95	86	26	20	30	171	110	52	624	181	54	37
17	86	85	25	20	100	144	109	51	537	164	52	37
18	80	75	24	20	600	137	112	52	510	147	52	38
19	76	89	23	20	9,000	112	101	51	449	138	77	38
20	72	91	23	20	10,000	125	104	49	411	128	65	37
21	67	88	23	20	3,770	164	149	51	368	120	59	38
22	64	60	22	21	850	140	147	46	334	114	56	39
23	61	55	22	22	396	129	125	49	310	107	54	41
24	61	55	22	23	477	121	116	85	291	138	54	39
25	61	70	22	24	422	117	108	100	266	126	51	40
26	62	80	22	20	406	113	101	89	247	112	50	39
27	63	90	22	20	251	117	114	76	232	106	50	36
28	61	85	22	20	166	707	117	66	209	112	49	35
29	60	86	22	20	------	582	111	57	227	102	46	34
30	62	88	22	20	------	550	106	54	468	93	44	36
31	64	------	22	20	------	730	------	55	------	88	45	------
TOTAL	2,187	2,254	1,174	638	26,704	6,166	4,641	2,095	43,396	5,775	1,869	1,190
MEAN	70.5	75.1	37.9	20.6	954	199	155	67.6	1,447	186	60.3	39.7
MAX	146	91	90	24	10,000	730	519	100	6,990	435	86	45
MIN	34	55	22	20	13	100	101	46	48	88	44	34
CFSM	.08	.09	.04	.02	1.08	.23	.18	.08	1.64	.21	.07	.05
IN.	.09	.10	.05	.03	1.13	.26	.20	.09	1.83	.24	.08	.05
AC-FT	4,340	4,470	2,330	1,270	52,970	12,230	9,210	4,160	86,080	11,450	3,710	2,360

CAL YR 1970 TOTAL 50,404 MEAN 138 MAX 3,850 MIN 12 CFSM .16 IN 2.13 AC-FT 99,980
WTR YR 1971 TOTAL 98,089 MEAN 269 MAX 10,000 MIN 13 CFSM .31 IN 4.14 AC-FT 194,600

PEAK DISCHARGE (BASE, 2,500 CFS).--Feb. 19 (2315) 13,400 cfs (28.13 ft); June 9 (0230) 7,440 cfs (22.90 ft).

06602400 MONONA-HARRISON DITCH NEAR TURIN, IOWA

LOCATION.--Lat 41°57'52", long 95°59'30", in NW1/4 NE1/4 sec.32, T.83 N., R.44 W., Monona County, on right pier at downstream side of bridge on county highway E51, 1.0 mile west of gaging station on Little Sioux River near Turin, 4 miles southwest of Turin, 5.2 miles northeast of Blencoe, and 12.5 miles upstream from mouth.
DRAINAGE AREA.--900 sq mi.
PERIOD OF RECORD.--January 1958 to current year. Records for April 1939 to January 1958 not equivalent owing to diversion from Little Sioux River through equalizer ditch 1.5 miles upstream. Prior to May 1942, published as "near Blencoe".
GAGE.--Water-stage recorder. Datum of gage is 1,020.00 ft above mean sea level (Corps of Engineers bench mark). Prior to May 7, 1942, non-recording gage at site 4.8 miles downstream at datum 10.40 ft lower. May 7, 1942, to October 13, 1953, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--13 years, 225 cfs (3.57 inches per year, 163,000 acre-ft per year); median of yearly mean discharges, 200 cfs (3.2 inches per year, 145,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 19,900 cfs Feb. 19 (gage height, 23.03 ft); minimum daily, 41 cfs Feb. 8, 9.
Period of record: Maximum discharge, 19,900 cfs Feb. 19, 1971 (gage height, 23.03 ft); minimum daily, 8.5 cfs Jan. 3-11, 1959.
REMARKS.--Records good except those for winter period, which are poor. Monona-Harrison ditch is a dug channel and is a continuation of West Fork ditch, paralleling Little Sioux River, and empties into the Missouri River 1 1/2 miles upstream from mouth of Little Sioux River. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Oct. 11-24; stage-discharge relation affected by ice Nov. 22-28, Dec. 4 to Feb. 19, Feb. 23 to Mar. 10).

.5	42	8.0	1,990
1.0	105	12.0	4,160
1.5	188	17.0	8,800
2.0	282	21.5	15,900
4.0	742		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46	104	142	56	55	1,000	192	111	97	197	79	53
2	44	105	147	56	55	900	172	106	92	138	75	52
3	43	112	123	56	54	850	157	105	91	118	73	52
4	46	135	100	54	50	800	156	105	91	210	74	54
5	50	130	90	54	48	800	149	105	843	246	72	51
6	50	126	75	52	46	800	138	99	900	192	72	50
7	736	122	80	52	42	720	140	108	4,860	149	70	49
8	1,030	118	90	52	41	600	137	98	1,790	128	70	45
9	942	126	100	52	41	550	129	91	1,670	122	69	44
10	793	138	80	52	42	720	134	94	1,290	231	68	44
11	464	134	76	52	43	1,420	128	95	632	443	65	45
12	378	137	74	52	45	2,260	116	91	417	226	64	46
13	308	129	72	52	44	2,180	114	90	332	154	64	46
14	226	122	72	52	43	1,570	111	83	476	130	62	45
15	177	108	70	52	48	661	117	81	294	118	60	45
16	152	102	70	52	200	332	117	77	238	110	59	43
17	137	120	68	52	500	262	114	75	217	102	59	44
18	128	128	68	52	2,000	250	117	78	202	99	59	44
19	120	224	66	52	18,000	217	118	87	195	94	65	44
20	117	252	66	54	14,900	226	117	90	183	91	192	44
21	116	197	64	56	6,130	565	132	84	163	88	83	45
22	110	135	64	60	3,430	517	177	82	149	90	63	46
23	106	120	62	62	2,000	326	144	79	142	99	57	48
24	105	110	62	64	1,500	224	122	717	135	92	54	46
25	106	100	60	66	1,400	202	116	235	128	87	51	52
26	104	105	60	64	1,500	188	111	123	126	84	50	53
27	108	110	60	62	1,500	184	120	106	123	83	51	57
28	110	120	58	60	1,200	443	137	98	114	101	51	51
29	104	123	58	58	------	464	129	94	111	116	51	45
30	105	129	58	58	------	244	120	92	172	87	51	46
31	105	------	58	56	------	213	------	97	------	81	54	------
TOTAL	7,166	3,921	2,393	1,724	54,957	20,688	3,981	3,676	16,273	4,306	2,087	1,429
MEAN	231	131	77.2	55.6	1,963	667	133	119	542	139	67.3	47.6
MAX	1,030	252	147	66	18,000	2,260	192	717	4,860	443	192	57
MIN	43	100	58	52	41	184	111	75	91	81	50	43
CFSM	.26	.15	.09	.06	2.18	.74	.15	.13	.60	.15	.07	.05
IN.	.30	.16	.10	.07	2.27	.86	.16	.15	.67	.18	.09	.06
AC-FT	14,210	7,780	4,750	3,420	109,000	41,030	7,900	7,290	32,280	8,540	4,140	2,830

CAL YR 1970 TOTAL 48,732 MEAN 134 MAX 1,590 MIN 30 CFSM .15 IN 2.01 AC-FT 96,660
WTR YR 1971 TOTAL 122,601 MEAN 336 MAX 18,000 MIN 41 CFSM .37 IN 5.07 AC-FT 243,200

PEAK DISCHARGE (BASE, 2,500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	0730	23.03	19,900	6-7	1100	15.40	7,040
3-13	0400	9.33	2,580				

06604000 SPIRIT LAKE NEAR ORLEANS, IOWA

LOCATION.--Lat 43°28'12", long 95°07'25", in NE1/4 NW1/4 sec.20, T.100 N., R.36 W., Dickinson County, 2.3 miles upstream from lake outlet and 2.3 miles northwest of Orleans.
DRAINAGE AREA.--75.6 sq mi.
PERIOD OF RECORD.--May 1933 to current year (fragmentary prior to 1951). Prior to October 1949, published as "at Orleans".
GAGE.--Water-stage recorder. Datum of gage is 1,387.25 ft above mean sea level, 90.0 ft above Iowa Lake Survey datum, and 14.2 ft below crest of spillway. Prior to July 6, 1950, nonrecording gage or water-stage recorder at various sites near outlet, all at present datum.
EXTREMES.--Current year: Maximum gage height, 15.16 ft Apr. 2; minimum, 13.27 ft Sept. 30.
Period of record: Maximum gage height observed, 15.74 ft June 19, 1944; minimum observed, 6.75 ft Oct. 20, 1935.
REMARKS.--Lake is formed by concrete dam with ungated spillway at elevation 1,401.4 ft above mean sea level. Dam constructed in 1969. A previous outlet works had been constructed in 1944. Lake is used for conservation and recreation. Area of lake is approximately 5,700 acres. Records of water temperatures for the current year are published in Part 2 of this report.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.54	13.86	14.20	14.40	14.41		15.11	14.74	14.43	14.60	14.13	13.65
2	13.52	13.89	14.20	14.40	14.40		15.12	14.73	14.45	14.57	14.12	13.64
3	13.49	13.91	14.21	14.41	14.40		15.13	14.70	14.47	14.53	14.10	13.62
4	13.47	13.91	14.22	14.43	14.40		15.13	14.68	14.54	14.59	14.08	13.63
5	13.47	13.91	14.22	14.43	14.41		15.13	14.67	14.59	14.59	14.05	13.61
6	13.45	13.91	14.22	14.43	14.41		15.13	14.64	14.61	14.58	14.04	13.60
7	13.55	13.92	14.22	14.43	14.41		15.13	14.62	14.70	14.56	14.02	13.59
8	13.67	13.96	14.22	14.43	14.41		15.12	14.60	14.73	14.55	14.01	13.57
9	13.75	14.03	14.23	14.43	14.41		15.12	14.57	14.76	14.53	14.00	13.54
10	13.77	14.05	14.27	14.43	14.41		15.11	14.56	14.80	14.57	13.99	13.53
11	13.78	14.07	14.32	14.43	14.41		15.11	14.54	14.80	14.57	13.98	13.52
12	13.79	14.10	14.33	14.43	14.41	14.75	15.10	14.51	14.80	14.55	13.95	13.50
13	13.80	14.10	14.34	14.43	14.41	14.78	15.08	14.49	14.80	14.53	13.93	13.48
14	13.80	14.10	14.34	14.43	14.41	14.84	15.06	14.46	14.79	14.51	13.93	13.45
15	13.80	14.10	14.35	14.42	14.41	14.87	15.02	14.47	14.77	14.49	13.90	13.42
16	13.79	14.11	14.35	14.42	14.41	14.90	15.01	14.45	14.75	14.48	13.88	13.40
17	13.78	14.12	14.36	14.42	14.41	14.91	15.01	14.45	14.72	14.47	13.87	13.38
18	13.79	14.13	14.36	14.42	14.44	15.00	15.00	14.45	14.77	14.44	13.86	13.37
19	13.79	14.15	14.37	14.42	14.57	15.05	14.99	14.46	14.76	14.42	13.87	13.35
20	13.79	14.16	14.37	14.42	14.62	15.06	14.97	14.45	14.76	14.41	13.86	13.32
21	13.80	14.17	14.38	14.42	14.65	15.06	14.98	14.44	14.75	14.37	13.86	13.31
22	13.80	14.13	14.38	14.43	14.66	15.06	14.94	14.40	14.73	14.35	13.85	13.32
23	13.81	14.14	14.38	14.43		15.05	14.90	14.41	14.70	14.35	13.84	13.31
24	13.82	14.15	14.39	14.43		15.05	14.88	14.40	14.69	14.33	13.81	13.30
25	13.83	14.16	14.39	14.43		15.04	14.85	14.37	14.68	14.31	13.78	13.31
26	13.85	14.16	14.40	14.43		15.03	14.84	14.37	14.65	14.27	13.75	13.31
27	13.87	14.17	14.39	14.43		15.00	14.84	14.36	14.60	14.24	13.73	13.31
28	13.86	14.18	14.40	14.43		15.00	14.80	14.35	14.60	14.22	13.71	13.31
29	13.85	14.18	14.40	14.43	------	15.03	14.79	14.33	14.59	14.18	13.68	13.32
30	13.86	14.20	14.40	14.43	------	15.05	14.76	14.32	14.62	14.16	13.66	13.31
31	13.86	------	14.40	14.42	------	15.08	------	14.36	------	14.13	13.67	------

06604200 WEST OKOBOJI LAKE AT LAKESIDE LABORATORY NEAR MILFORD, IOWA

LOCATION.--Lat 43°22'33", long 95°10'49", in NE1/4 SW1/4 sec.23, T.99 N., R.37 W., Dickinson County, at pumping station of Lakeside Laboratory on west shore, 2.3 miles upstream from lake outlet and 3.8 miles northwest of Milford.
DRAINAGE AREA.--125 sq mi.
PERIOD OF RECORD.--May 1933 to current year. Prior to October 1937, published as "at Arnolds Park". Prior to October 1966, published as Okoboji Lake at Lakeside Laboratory near Milford.
GAGE.--Water-stage recorder. Datum of gage is 1,391.76 ft above mean sea level, 94.51 ft above Iowa Lake Survey datum, and about 4.0 ft below crest of spillway. Prior to June 17, 1938, nonrecording gage at State Pier at Arnolds Park at same datum.
EXTREMES.--Current year: Maximum gage height, 5.29 ft Apr. 3; minimum, 3.33 ft Sept. 30.
Period of record: Maximum gage height, 6.18 ft July 7, 1962; minimum observed, 0.20 ft Sept. 20, 1959.
REMARKS.--Lake is formed by concrete dam with ungated spillway at elevation 1,395.8 ft above mean sea level. Lake is used for conservation and recreation. Area of lake is approximately 3,900 acres.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.66	3.92	4.08	4.17	4.13	4.66	5.26	4.87	4.42	4.73	4.13	3.72
2	3.64	3.94	4.09	4.16	4.13	4.66	5.28	4.84	4.42	4.70	4.11	3.70
3	3.61	3.97	4.08	4.16	4.13	4.65	5.28	4.82	4.42	4.66	4.09	3.69
4	3.59	3.96	4.08	4.17	4.13	4.66	5.27	4.79	4.49	4.80	4.06	3.71
5	3.58	3.96	4.08	4.17	4.14	4.68	5.26	4.79	4.53	4.85	4.04	3.67
6	3.58	3.95	4.07	4.17	4.13	4.69	5.24	4.76	4.54	4.83	4.02	3.66
7	3.67	3.95	4.07	4.16	4.13	4.70	5.21	4.73	4.68	4.80	4.00	3.65
8	3.79	3.99	4.08	4.16	4.13	4.71	5.19	4.70	4.71	4.79	3.99	3.64
9	3.88	4.08	4.08	4.16	4.13	4.72	5.18	4.68	4.75	4.76	3.97	3.60
10	3.89	4.08	4.10	4.16	4.13	4.73	5.15	4.67	4.79	4.79	3.97	3.59
11	3.90	4.10	4.15	4.16	4.13	4.74	5.16	4.66	4.82	4.77	3.95	3.58
12	3.92	4.11	4.15	4.16	4.13	4.78	5.15	4.61	4.83	4.73	3.92	3.56
13	3.92	4.12	4.16	4.16	4.13	4.86	5.13	4.59	4.86	4.69	3.91	3.55
14	3.91	4.10	4.16	4.16	4.13	5.03	5.10	4.57	4.87	4.65	3.91	3.52
15	3.90	4.10	4.16	4.16	4.13	5.11	5.08	4.54	4.87	4.61	3.88	3.48
16	3.90	4.10	4.15	4.16	4.13	5.12	5.07	4.53	4.86	4.58	3.87	3.46
17	3.88	4.11	4.15	4.16	4.13	5.13	5.06	4.52	4.85	4.55	3.85	3.44
18	3.88	4.10	4.15	4.16	4.18	5.18	5.05	4.52	4.90	4.50	3.85	3.42
19	3.88	4.12	4.15	4.16	4.41	5.22	5.04	4.54	4.90	4.47	3.92	3.40
20	3.88	4.12	4.16	4.16	4.49	5.22	5.03	4.52	4.90	4.45	3.91	3.38
21	3.88	4.12	4.15	4.15	4.51	5.22	5.04	4.51	4.88	4.41	3.90	3.37
22	3.88	4.10	4.16	4.15	4.53	5.22	5.02	4.48	4.87	4.40	3.89	3.38
23	3.89	4.09	4.16	4.15	4.55	5.22	5.00	4.47	4.84	4.39	3.89	3.37
24	3.90	4.09	4.16	4.15	4.56	5.22	4.97	4.46	4.83	4.35	3.87	3.36
25	3.91	4.08	4.16	4.15	4.56	5.20	4.95	4.44	4.80	4.32	3.84	3.37
26	3.93	4.09	4.16	4.15	4.61	5.20	4.92	4.43	4.77	4.28	3.82	3.37
27	3.95	4.08	4.16	4.15	4.67	5.14	4.95	4.41	4.73	4.25	3.80	3.37
28	3.94	4.08	4.16	4.15	4.67	5.11	4.93	4.40	4.71	4.22	3.78	3.37
29	3.93	4.07	4.16	4.14	------	5.14	4.92	4.37	4.72	4.18	3.76	3.36
30	3.94	4.08	4.16	4.14	------	5.17	4.89	4.37	4.76	4.16	3.74	3.35
31	3.93	------	4.17	4.14	------	5.20	------	4.41	------	4.14	3.74	------

06605600 LITTLE SIOUX RIVER AT GILLETT GROVE, IOWA

LOCATION.--Lat 43°01'06", long 95°02'34", in SW1/4 NE1/4 sec.25, T.95 N., R.36 W., Clay County on left bank 5 ft downstream from bridge on county highway B53, 0.4 mile northwest of Gillett Grove, 0.9 mile above Elk Creek, and at mile 146.1.
DRAINAGE AREA.--1,334 sq mi.
PERIOD OF RECORD.--June 1958 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,266.84 ft above mean sea level.
AVERAGE DISCHARGE.--13 years, 376 cfs (3.83 inches per year, 272,400 acre-ft per year); median of yearly mean discharges, 270 cfs (2.7 inches per year, 196,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 6,000 cfs Mar. 14 (gage height, 14.53 ft, backwater from ice); minimum daily, 41 cfs Oct. 5,6.
Period of record: Maximum discharge, 20,200 cfs Apr. 7, 1965 (gage height, 18.67 ft); minimum daily, 1.0 cfs Feb. 3-27, 1959.
Flood of June 9, 1953 reached a discharge of about 24,000 cfs (estimated on basis of interpretive flood studies).
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used June 17 to July 3; stage-discharge relation affected by ice Nov. 23 to Mar. 24).

3.0	38	7.0	755	12.0	3,100
3.5	96	9.0	1,350	14.0	6,000
5.0	326	11.0	2,280		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	283	380	160	92	1,080	3,340	577	266	713	213	70
2	50	281	355	160	87	1,060	3,010	540	265	571	195	61
3	44	295	325	156	84	980	2,750	500	297	509	183	57
4	42	337	282	98	82	860	2,500	472	378	1,510	171	68
5	41	384	240	64	82	760	2,240	470	796	2,930	161	80
6	41	403	204	80	82	650	1,960	472	1,060	2,450	154	71
7	83	391	290	90	80	610	1,790	440	2,500	1,700	147	66
8	208	375	370	98	76	580	1,640	410	3,890	1,100	140	63
9	379	460	360	104	72	550	1,480	385	5,630	826	131	60
10	569	693	292	108	76	540	1,340	370	4,740	790	124	58
11	587	825	210	112	76	530	1,220	350	4,160	928	115	52
12	566	815	260	112	76	700	1,100	335	3,740	959	109	51
13	592	785	280	112	78	1,080	1,020	324	3,050	839	105	45
14	557	746	270	108	76	4,000	970	304	2,290	721	97	44
15	490	694	260	108	76	5,400	923	287	1,870	638	92	42
16	442	652	250	108	76	4,000	867	272	1,530	561	87	42
17	405	625	248	106	100	3,500	813	265	1,290	495	85	43
18	369	596	246	106	260	2,800	787	264	1,120	445	81	43
19	343	580	238	106	1,500	2,300	756	284	1,000	393	112	42
20	320	573	230	104	4,000	2,380	736	290	906	361	134	43
21	302	565	220	104	3,120	2,420	753	271	848	328	117	42
22	293	529	210	106	2,780	2,120	747	258	808	342	100	47
23	283	258	204	106	2,200	1,860	712	270	773	644	88	55
24	278	328	198	108	1,880	1,600	660	310	741	492	81	51
25	268	440	188	108	1,560	1,500	619	316	700	404	74	50
26	268	520	184	110	1,380	1,400	593	304	659	342	70	57
27	282	460	180	108	1,240	1,330	613	288	604	314	66	57
28	287	420	176	106	1,160	2,020	637	271	530	307	65	56
29	288	400	170	104	------	2,900	625	256	553	272	61	51
30	286	390	168	102	------	3,290	609	239	867	248	58	48
31	284	------	164	97	------	3,480	------	237	------	230	68	------
TOTAL	9,305	15,103	7,652	3,359	22,451	58,280	37,810	10,631	47,861	23,362	3,484	1,615
MEAN	300	503	247	108	802	1,880	1,260	343	1,595	754	112	53.8
MAX	592	825	380	160	4,000	5,400	3,340	577	5,630	2,930	213	80
MIN	41	258	164	64	72	530	593	237	265	230	58	42
CFSM	.22	.38	.19	.08	.60	1.41	.94	.26	1.20	.57	.08	.04
IN.	.26	.42	.21	.09	.63	1.63	1.05	.30	1.33	.65	.10	.05
AC-FT	18,460	29,960	15,180	6,660	44,530	115,600	75,000	21,090	94,930	46,340	6,910	3,200

CAL YR 1970 TOTAL 114,391 MEAN 313 MAX 1,960 MIN 38 CFSM .23 IN 3.19 AC-FT 226,900
WTR YR 1971 TOTAL 240,913 MEAN 660 MAX 5,630 MIN 41 CFSM .49 IN 6.72 AC-FT 477,900

PEAK DISCHARGE (BASE, 1,500 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-20	unknown	14.24	4,200*	6-9	0615	13.92	5,870
3-14	2030	14.53	6,000*	7-5	1145	12.03	3,140
3-31	1145	12.34	3,530				

* About

06606600 LITTLE SIOUX RIVER AT CORRECTIONVILLE, IOWA

LOCATION.--Lat 42°28'20", long 95°47'49", in NE1/4 NW1/4 sec.1, T.88 N., R.43 W., Woodbury County, on right bank 10 ft upstream from bridge on State Highway 31, 0.3 mile upstream from Bacon Creek, 0.5 mile west of Correctionville, 0.8 mile downstream from Pierson Creek, and at mile 56.0.
DRAINAGE AREA.--2,500 sq mi.
PERIOD OF RECORD.--May 1918 to July 1925, October 1928 to July 1932, June 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.
GAGE.--Water-stage recorder. Datum of gage is 1,096.49 ft above mean sea level. May 28, 1918, to July 1, 1925 and Oct. 29, 1928 to July 15, 1929, nonrecording gage 0.2 mile downstream at datum 1.25 ft lower. July 16, 1929, to July 2, 1932, and June 15, 1936, to Nov. 7, 1938, nonrecording gage at present site and datum.
AVERAGE DISCHARGE.--44 years (1918-24, 1928-31, 1936-71), 683 cfs (3.71 inches per year, 494,800 acre-ft per year); median of yearly mean discharges, 520 cfs (2.8 inches per year, 377,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 16,000 cfs Feb. 20 (gage height, 22.23 ft); minimum daily, 70 cfs Oct. 6.
Period of record: Maximum discharge, 29,800 cfs Apr. 7, 1965 (gage height, 25.86 ft); minimum daily, 2.6 cfs July 17, 25, 1936, caused by construction dam above gage.
Flood of June 23 or 24, 1891, reached a stage of 29.34 ft, present datum, from levels to floodmark by Soil Conservation Service (discharge not determined).
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analyses for current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 856: 1919. WSP 1240: 1924-25, 1931, 1932 (M), 1937, 1945 (M), 1947 (M), 1949 (M). WSP 1440: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	98	470	830	350	170	2,200	4,450	1,010	517	1,540	594	164
2	91	470	820	340	165	1,800	4,480	969	496	1,650	544	161
3	84	486	730	330	160	1,500	4,480	923	486	1,540	501	155
4	77	514	660	320	155	1,400	4,330	874	526	1,430	471	160
5	72	531	600	310	155	1,400	3,990	836	1,860	1,600	441	152
6	70	552	420	300	150	1,300	3,620	800	3,940	2,060	421	140
7	208	587	330	290	150	1,200	3,300	774	6,400	2,800	401	130
8	556	621	380	280	145	1,100	3,020	750	6,050	3,220	373	131
9	638	696	420	270	145	1,100	2,730	729	6,270	3,300	352	130
10	710	731	400	260	140	1,200	2,510	704	7,350	3,440	331	126
11	704	769	350	250	140	2,200	2,340	670	6,870	2,920	308	125
12	831	923	380	240	140	3,410	2,160	640	6,990	2,320	286	123
13	880	1,070	420	230	145	3,810	2,010	617	7,120	2,100	274	121
14	838	1,110	440	225	150	4,230	1,860	594	6,680	1,910	260	116
15	796	1,070	430	220	155	4,510	1,740	570	6,090	1,720	249	108
16	763	1,040	420	215	300	4,240	1,650	549	5,410	1,530	244	105
17	708	1,020	410	210	600	5,210	1,580	524	4,360	1,370	235	101
18	646	986	400	205	2,500	6,300	1,500	523	3,420	1,250	224	99
19	603	1,000	400	200	10,000	5,300	1,420	539	2,930	1,130	344	99
20	562	1,000	400	195	15,400	4,200	1,380	543	2,530	1,030	264	100
21	526	964	390	195	12,400	3,600	1,410	526	2,230	946	215	98
22	500	915	390	195	6,650	3,300	1,330	517	2,030	870	240	100
23	478	500	380	195	3,900	3,000	1,280	639	1,860	1,040	269	108
24	481	450	380	195	4,500	2,900	1,240	1,390	1,730	1,590	237	107
25	472	450	380	195	5,000	2,700	1,180	760	1,620	1,390	212	116
26	461	480	370	190	5,100	2,500	1,120	774	1,550	1,130	196	134
27	462	600	370	185	4,200	2,410	1,100	709	1,460	956	189	133
28	453	700	370	185	3,000	3,830	1,070	659	1,370	987	183	126
29	450	800	360	185	------	4,570	1,050	606	1,310	779	177	118
30	459	840	355	180	------	4,400	1,050	563	1,900	715	170	115
31	470	------	350	175	------	4,400	------	541	------	656	167	------
TOTAL	15,147	22,345	13,735	7,315	75,815	95,220	66,380	21,822	103,355	50,919	9,372	3,701
MEAN	489	745	443	236	2,708	3,072	2,213	704	3,445	1,643	302	123
MAX	880	1,110	830	350	15,400	6,300	4,480	1,390	7,350	3,440	594	164
MIN	70	450	330	175	140	1,100	1,050	517	486	656	167	98
CFSM	.20	.30	.18	.09	1.08	1.23	.89	.28	1.38	.66	.12	.05
IN.	.23	.33	.20	.11	1.13	1.42	.99	.32	1.54	.76	.14	.06
AC-FT	30,040	44,320	27,240	14,510	150,400	188,900	131,700	43,280	205,000	101,000	18,590	7,340

CAL YR 1970 TOTAL 214,927 MEAN 589 MAX 3,540 MIN 56 CFSM .24 IN 3.20 AC-FT 426,300
WTR YR 1971 TOTAL 485,126 MEAN 1,329 MAX 15,400 MIN 70 CFSM .53 IN 7.22 AC-FT 962,200

PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-20	1945	22.23	16,000	3-18	1615	18.09	6,530
2-26	--	--	* 5,200	3-29	0815	15.77	4,650
3-15	0400	15.85	4,700	6-7	0115	18.89	7,560

* About

06607000 ODEBOLT CREEK NEAR ARTHUR, IOWA

LOCATION.--Lat 42°20'10", long 95°22'52", in SE1/4 NE1/4 sec.21, T.87 N., R.39 W., Ida County, near center of span on downstream side of bridge on county highway M27, 700 ft south of State Highway 175, 1.0 mile downstream from Hoskins Creek, 1.8 miles west of Arthur, 4.6 miles southeast of Ida Grove, and 6.5 miles upstream from mouth.
DRAINAGE AREA.--39.3 sq mi.
PERIOD OF RECORD.--October 1957 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,258.57 ft above mean sea level.
AVERAGE DISCHARGE.--14 years, 14.4 cfs (4.98 inches per year, 10,430 acre-ft per year); median of yearly mean discharges, 13 cfs (4.5 inches per year, 9,400 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,000 cfs Feb. 18 (gage height, 13.98 ft, backwater from ice); minimum daily, 0.55 cfs Jan. 5.
Period of record: Maximum discharge, 5,200 cfs Aug. 30, 1962 (gage height, 13.78 ft); maximum gage height, 14.11 ft Mar. 31, 1965 (backwater from ice); minimum daily discharge, 0.2 cfs Jan. 2 to Feb. 27, 1959.
Flood of July 3, 1951, reached a stage of 11.96 ft, from floodmark (discharge, 4,320 cfs, from contracted-opening measurement of peak flow).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Mar. 14-17, 27, 28; stage-discharge relation affected by ice Nov. 14, 15, 19, 22-30, Dec. 4-7, Dec. 10 to Mar. 11, Mar. 18-26).

Oct. 1 to Feb. 18				Feb. 19 to Sept. 30			
2.7	1.0	3.2	11	2.8	.44	3.5	16
2.8	2.0	3.6	29	2.9	.90	4.0	51
3.0	5.4	4.0	54	3.0	1.7	5.0	154
				3.2	5.0	7.0	416

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	2.4	4.1	1.9	.98	7.3	16	6.3	6.0	3.2	1.8	1.3
2	1.4	2.4	3.5	1.4	.93	7.2	14	6.0	5.7	3.2	1.7	1.2
3	1.4	3.2	3.4	.86	.89	7.1	13	5.5	5.5	3.4	1.6	1.2
4	1.5	3.1	3.1	.64	.88	6.9	11	5.8	4.8	5.5	1.6	4.2
5	1.5	2.6	2.8	.55	.88	7.0	9.9	5.5	4.5	3.6	1.5	2.0
6	1.5	2.6	2.5	.71	.88	7.0	9.0	5.3	11	3.2	1.5	1.1
7	2.2	2.5	3.5	.84	.87	6.8	8.0	5.8	27	3.8	1.5	.97
8	11	2.8	4.1	.95	.81	6.7	7.6	5.0	14	3.2	1.5	.97
9	34	4.9	3.9	1.0	.72	6.6	7.1	4.8	14	3.0	1.5	.97
10	9.3	3.1	3.5	1.0	.74	10	6.6	5.0	10	11	1.4	.97
11	4.7	3.2	3.8	1.1	.78	100	6.8	4.8	6.6	3.5	1.4	.97
12	4.1	3.2	3.6	1.1	.80	365	6.3	4.2	5.3	3.2	1.5	.97
13	4.1	2.9	3.4	1.2	.76	312	6.0	4.2	4.6	3.2	1.4	.97
14	4.5	2.4	3.2	1.2	.76	81	6.0	3.8	4.2	3.1	1.4	.90
15	4.3	2.7	3.0	1.2	1.1	21	6.0	3.6	4.2	3.1	1.4	.90
16	4.1	3.1	3.4	1.2	10	14	6.0	3.6	3.6	3.1	1.3	.97
17	3.6	2.8	3.2	1.2	200	12	6.0	3.6	3.6	3.0	1.3	.97
18	3.2	2.8	3.0	1.2	830	13	5.8	7.4	4.0	3.0	1.3	1.0
19	2.8	6.6	2.7	1.1	178	14	5.8	13	4.0	3.0	3.0	1.0
20	2.5	5.8	2.5	1.1	25	13	8.7	9.0	3.6	3.0	1.7	1.1
21	2.3	4.9	2.3	1.2	14	11	16	8.0	3.8	3.0	1.4	1.0
22	2.0	4.6	2.0	1.2	8.0	11	8.7	7.8	4.0	2.8	1.3	1.1
23	2.0	4.2	2.3	1.2	6.8	9.8	7.1	7.6	3.8	2.7	1.2	1.2
24	2.9	4.0	2.1	1.2	6.8	8.0	6.8	7.4	3.8	2.6	1.2	.97
25	2.1	4.7	2.2	1.2	6.8	6.6	5.8	7.3	3.5	2.5	1.3	1.6
26	2.5	4.2	2.3	1.2	7.2	6.4	6.6	6.7	3.5	2.4	1.3	1.3
27	3.4	4.0	2.2	1.2	7.5	111	7.6	6.4	3.4	2.3	1.2	.90
28	2.4	3.8	2.1	1.2	7.4	84	6.6	6.2	3.4	2.3	1.2	.84
29	2.4	4.0	2.0	1.1	------	29	6.0	6.0	3.5	2.2	1.2	1.4
30	2.5	3.9	1.9	1.1	------	22	5.8	6.0	4.2	2.1	1.2	1.2
31	2.5	------	1.9	1.0	------	20	------	6.0	------	2.0	1.3	------
TOTAL	130.1	107.4	89.5	34.25	1,320.28	1,336.4	242.6	187.6	183.1	101.2	45.1	36.14
MEAN	4.20	3.58	2.89	1.10	47.2	43.1	8.09	6.05	6.10	3.26	1.45	1.20
MAX	34	6.6	4.1	1.9	830	365	16	13	27	11	3.0	4.2
MIN	1.4	2.4	1.9	.55	.72	6.4	5.8	3.6	3.4	2.0	1.2	.84
CFSM	.11	.09	.07	.03	1.20	1.10	.21	.15	.16	.08	.04	.03
IN.	.12	.10	.08	.03	1.25	1.26	.23	.18	.17	.10	.04	.03
AC-FT	258	213	178	68	2,620	2,650	481	372	363	201	89	72

CAL YR 1970 TOTAL 2,486.60 MEAN 6.81 MAX 223 MIN 1.0 CFSM .17 IN 2.35 AC-FT 4,930
WTR YR 1971 TOTAL 3,813.67 MEAN 10.4 MAX 830 MIN .55 CFSM .26 IN 3.61 AC-FT 7,560

PEAK DISCHARGE (BASE, 500 CFS).--Feb. 18 (time unknown) about 2,000 cfs; Mar. 12 (1900) 637 cfs (8.72 ft).

06607200 MAPLE RIVER AT MAPLETON, IOWA

LOCATION.--Lat 42°09'28", long 95°48'27", in SE1/4 SE1/4 sec.23, T.85 N., R.43 W., Monona County, on right bank on downstream side of bridge on State Highway 175, 80 ft downstream from Chicago & North Western Railway Co. bridge, 0.5 mile southwest of Mapleton, 0.8 mile downstream from Wilsey Creek, 2.0 miles upstream from McClarey Creek, and 16.0 miles upstream from mouth.
DRAINAGE AREA.--669 sq mi.
PERIOD OF RECORD.--October 1941 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,085.86 ft above mean sea level. See WSP 1730 for history of changes prior to Sept. 20, 1956.
AVERAGE DISCHARGE.--30 years, 224 cfs (4.55 inches per year, 162,300 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 15,700 cfs Feb. 19 (gage height, 15.17 ft); minimum daily, 24 cfs Oct. 3, 6, 7.
Period of record: Maximum discharge, 15,700 cfs Feb. 19, 1971 (gage height, 15.17 ft); maximum gage height, 22.1 ft June 12, 1950; no flow Sept. 21, 22, 1945 caused by temporary dam above gage.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1310: 1942 (M), 1946 (M), 1948 (M), WSP 1440: Drainage area.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Nov. 1-11, Mar. 12-16, 27-30, June 6-11; stage-discharge relation affected by ice Nov. 22 to Feb. 18, Feb. 22 to Mar. 11).

Oct. 1 to Feb. 18		Feb. 19 to Sept. 30			
1.19	24	.93	26	4.0	1,040
1.6	66	1.0	34	6.0	2,150
1.9	116	1.3	80	8.0	3,700
2.5	270	1.9	220	11.0	7,300
3.5	645	2.5	408	15.0	15,200

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	82	160	40	38	200	415	109	124	434	89	37
2	28	81	140	37	38	160	332	105	135	200	84	37
3	24	94	120	34	39	140	273	99	122	152	80	32
4	25	100	115	32	38	130	254	105	120	149	75	29
5	25	108	110	30	37	140	228	109	124	652	73	52
6	24	118	105	28	36	130	206	111	510	251	69	40
7	24	112	100	26	34	120	195	118	2,610	198	68	35
8	217	112	100	26	32	110	187	113	2,520	179	66	31
9	267	125	98	27	30	130	184	107	1,270	171	65	34
10	358	145	96	28	32	200	189	109	1,140	373	60	34
11	300	186	94	28	40	900	174	116	626	668	57	27
12	203	171	92	28	60	3,900	169	105	455	433	54	26
13	156	163	90	28	70	5,830	161	101	362	285	52	28
14	116	154	90	28	80	4,410	154	97	312	223	50	31
15	87	116	88	28	130	2,350	152	93	273	189	50	29
16	86	110	86	28	400	683	154	91	240	169	50	31
17	77	123	84	28	700	422	152	91	212	152	48	31
18	64	96	82	28	3,500	372	159	111	198	140	48	31
19	61	159	79	28	13,200	259	138	144	176	129	58	33
20	56	171	76	28	6,780	200	140	138	164	111	71	33
21	55	166	73	30	1,470	270	200	113	147	99	66	33
22	53	120	70	30	300	341	195	99	138	95	52	35
23	54	80	67	32	150	325	147	128	127	171	50	39
24	62	100	64	34	200	254	131	1,010	120	159	42	39
25	60	100	61	36	250	228	124	480	116	228	37	45
26	69	110	58	36	260	203	124	273	109	142	37	49
27	86	110	55	36	260	387	127	195	101	113	33	46
28	80	120	52	36	250	2,000	138	159	91	122	29	42
29	84	130	49	38	------	1,510	131	140	93	169	28	42
30	86	140	46	38	------	646	120	129	478	113	28	45
31	82	------	43	38	------	498	------	133	------	97	35	------
TOTAL	2,995	3,702	2,643	972	28,454	27,448	5,453	5,031	13,213	6,766	1,704	1,076
MEAN	96.6	123	85.3	31.4	1,016	885	182	162	440	218	55.0	35.9
MAX	358	186	160	40	13,200	5,830	415	1,010	2,610	668	89	52
MIN	24	80	43	26	30	110	120	91	91	95	28	26
CFSM	.14	.18	.13	.05	1.52	1.32	.27	.24	.66	.33	.08	.05
IN.	.17	.21	.15	.05	1.58	1.53	.30	.28	.73	.38	.09	.06
AC-FT	5,940	7,340	5,240	1,930	56,440	54,440	10,820	9,980	26,210	13,420	3,380	2,130

CAL YR 1970 TOTAL 45,465 MEAN 125 MAX 2,360 MIN 24 CFSM .19 IN 2.53 AC-FT 90,180
WTR YR 1971 TOTAL 99,457 MEAN 272 MAX 13,200 MIN 24 CFSM .41 IN 5.53 AC-FT 197,300

PEAK DISCHARGE (BASE 4,000 CFS).--Feb. 19 (1900) 15,700 cfs (15.17 ft); Mar. 13 (1930) 7,440 cfs (10.98 ft).

06607500 LITTLE SIOUX RIVER NEAR TURIN, IOWA

LOCATION.--Lat 41°57'52", long 95°58'21", in NW1/4 NE1/4 sec.33, T.83 N., R.44 W., Monona County, on left bank on downstream side of bridge on county highway E51, 1.0 mile east of gaging station on Monona-Harrison ditch near Turin, 2.5 miles downstream from Maple River, 3.8 miles south of Turin, 6.2 miles northeast of Blencoe, and at mile 13.5.
DRAINAGE AREA.--3,526 sq mi. Prior to Jan. 15, 1958, 4,426 sq mi (combined area above this station and Monona-Harrison ditch station 1.0 mile west).
PERIOD OF RECORD.--January 1958 to current year. April 1939 to May 1942 at site 4.7 miles downstream published as "near Blencoe", June 1942 to January 1958 at site 1,200 ft east on old river channel; records not equivalent owing to diversion into Monona-Harrison ditch through equalizer ditch 1.5 miles upstream.
GAGE.--Water-stage recorder. Datum of gage is 1,019.85 ft above mean sea level (Corps of Engineers bench mark). Prior to July 15, 1958, nonrecording gages near present site at different datums. July 15 to Sept. 3, 1958, nonrecording gage at present site and datum.
AVERAGE DISCHARGE.--13 years, 1,057 cfs (4.07 inches per year, 765,800 acre-ft per year); median of yearly mean discharges, 750 cfs (2.9 inches per year, 543,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 30,000 cfs Feb. 19 (gage height, 27.44 ft, backwater from ice); minimum daily, 148 cfs Oct. 5, Sept. 22.
Period of record: Maximum discharge, about 30,000 cfs Feb. 19, 1971 (gage height, 27.44 ft, backwater from ice); minimum daily, 22 cfs Feb. 10-22, 1959.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used June 6-22, Aug. 6-16; stage-discharge relation affected by ice Nov. 23 to Feb. 19, Feb. 24 to Mar. 1).

5.5	90	15.0	4,980
6.0	200	19.0	9,100
7.0	512	22.0	14,400
10.0	1,830	24.0	19,600

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	652	1,250	380	205	2,700	5,280	1,250	787	2,300	763	229
2	170	656	1,200	370	200	2,350	5,270	1,210	767	1,550	696	225
3	164	676	1,100	360	200	2,030	5,250	1,180	741	1,580	652	225
4	151	692	1,000	350	200	2,070	5,160	1,140	721	1,470	626	243
5	148	719	850	340	195	1,920	4,870	1,090	831	1,800	573	229
6	149	749	700	320	195	1,890	4,430	1,050	2,740	1,830	530	232
7	277	765	750	300	195	1,830	3,990	1,040	6,180	2,390	481	212
8	772	804	700	280	190	1,650	3,650	994	9,170	3,170	492	199
9	1,070	854	660	270	190	1,620	3,270	953	7,570	3,500	465	186
10	1,160	943	600	260	185	1,670	2,880	947	7,420	3,800	433	189
11	1,130	984	620	250	185	2,600	2,670	901	7,390	4,070	424	187
12	1,110	1,040	640	240	180	7,250	2,490	867	6,830	3,080	395	185
13	1,110	1,150	660	230	180	10,900	2,280	825	6,890	2,520	376	182
14	1,120	1,270	680	225	175	9,690	2,090	795	6,890	2,200	358	188
15	1,080	1,310	680	220	180	7,170	1,900	762	6,540	1,940	340	169
16	1,040	1,280	680	220	250	5,270	1,780	726	5,820	1,730	322	164
17	994	1,260	660	220	500	5,170	1,730	705	4,960	1,490	310	150
18	927	1,240	640	220	3,000	6,110	1,650	711	3,850	1,330	306	157
19	864	1,270	620	220	26,000	6,540	1,580	768	3,050	1,210	322	150
20	808	1,290	600	220	18,100	5,790	1,520	785	2,570	1,110	397	157
21	771	1,270	580	220	12,400	4,710	1,550	722	2,220	1,030	377	160
22	716	1,120	560	220	8,010	4,310	1,550	738	1,990	952	304	148
23	680	1,100	540	220	4,360	4,040	1,450	729	1,840	923	298	155
24	675	1,000	520	220	3,200	3,740	1,400	1,620	1,690	1,280	330	157
25	663	900	500	220	3,600	3,490	1,360	1,710	1,600	1,620	299	197
26	648	1,100	480	210	4,200	3,210	1,310	1,120	1,500	1,480	274	200
27	671	1,200	460	210	4,100	2,950	1,310	1,050	1,410	1,130	255	203
28	661	1,250	440	210	3,300	4,870	1,310	975	1,290	1,070	244	192
29	649	1,250	420	210	------	6,410	1,300	915	1,220	1,080	242	180
30	651	1,250	400	210	------	5,820	1,280	846	1,520	897	237	192
31	649	------	390	210	------	5,370	------	833	------	851	246	------
TOTAL	21,842	31,044	20,580	7,855	93,875	135,140	77,560	29,957	107,997	56,383	12,367	5,642
MEAN	705	1,035	664	253	3,353	4,359	2,585	966	3,600	1,819	399	188
MAX	1,160	1,310	1,250	380	26,000	10,900	5,280	1,710	9,170	4,070	763	243
MIN	148	652	390	210	175	1,620	1,280	705	721	851	237	148
CFSM	.20	.29	.19	.07	.95	1.24	.73	.27	1.02	.52	.11	.05
IN.	.23	.33	.22	.08	.99	1.43	.82	.32	1.14	.59	.13	.06
AC-FT	43,320	61,580	40,820	15,580	186,200	268,100	153,800	59,420	214,200	111,800	24,530	11,190

CAL YR 1970 TOTAL 290,785 MEAN 797 MAX 4,100 MIN 95 CFSM .23 IN 3.07 AC-FT 576,800
WTR YR 1971 TOTAL 600,242 MEAN 1,644 MAX 26,000 MIN 148 CFSM .47 IN 6.33 AC-FT 1,191,000

PEAK DISCHARGE (BASE, 4,500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	--	--	* 30,000	3-29	1400	17.00	6,750
2-26	0445	14.44	4,560	6-8	1130	20.09	10,800
3-13	2400	21.38	13,200	7-10	2230	14.48	4,590
3-19	1130	16.93	6,680				

* About

06608500 SOLDIER RIVER AT PISGAH, IOWA

LOCATION.--Lat 41°49'52", long 95°55'50", in NW1/4NE1/4 sec.14, T.81 N., R.44 W., Harrison County, on left bank on downstream side of bridge on county highway F20, at west edge of Pisgah, 0.4 mile downstream from Cobb Creek, 0.5 mile upstream from Mogger Ditch, and 13.1 miles upstream from mouth.
DRAINAGE AREA.--407 sq mi.
PERIOD OF RECORD.--March 1940 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,036.53 ft above mean sea level. Prior to Oct. 11, 1954, non-recording gage at same site and datum with supplementary water-stage recorder operating above 8.2 ft gage height Mar. 2, 1946, to Sept. 24, 1953.
AVERAGE DISCHARGE.--31 years, 124 cfs (4.14 inches per year, 89,840 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 17,000 cfs Feb. 19 (gage height, 23.70 ft, from floodmark); minimum daily, 7.0 cfs Jan. 19,20.
Period of record: Maximum discharge, 22,500 cfs June 12, 1950 (gage height, 28.17 ft); minimum daily, 2 cfs Jan. 2-10, 1945.
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 956: 1940 (M). WSP 1240: 1940, 1941 (M), 1947. WSP 1440: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	29	50	12	13	120	100	40	43	64	18	11
2	12	29	44	11	12	110	82	40	34	36	18	10
3	12	35	38	10	12	105	71	38	31	30	17	10
4	12	42	30	9.0	12	100	68	40	32	29	27	12
5	12	37	26	8.0	12	85	64	43	42	34	28	40
6	12	31	30	8.0	12	75	63	41	42	27	21	23
7	15	29	34	8.0	12	65	60	55	605	24	18	16
8	55	29	36	8.0	12	60	60	60	136	338	16	14
9	163	36	30	8.0	12	72	57	45	118	63	16	12
10	167	39	26	8.0	13	245	54	50	221	266	15	12
11	69	33	25	8.0	14	1,990	51	50	101	81	14	12
12	49	35	24	8.0	15	3,280	50	42	57	46	14	12
13	40	34	24	8.0	15	3,260	46	38	53	31	13	12
14	33	30	24	8.0	16	1,190	46	34	85	29	12	11
15	30	22	24	8.0	17	291	46	31	48	28	12	11
16	28	22	25	8.0	100	150	45	30	46	27	12	10
17	27	32	26	8.0	700	142	45	31	45	22	12	11
18	26	34	26	8.0	6,740	144	45	46	60	22	11	11
19	26	54	25	7.0	7,880	88	44	76	48	20	15	12
20	26	79	24	7.0	1,090	101	45	67	40	20	19	12
21	26	48	23	8.0	290	126	64	43	39	18	14	12
22	25	35	22	9.0	240	120	60	38	34	19	12	12
23	25	30	21	10	220	98	45	38	34	21	12	14
24	50	30	20	11	200	87	42	40	34	26	10	14
25	55	32	19	12	180	88	40	38	33	23	10	16
26	32	33	18	13	170	84	40	37	29	20	10	18
27	41	34	17	13	150	2,470	48	34	28	18	10	16
28	41	35	16	13	130	954	50	31	28	26	10	14
29	30	40	15	13	------	178	43	30	59	23	10	12
30	29	45	14	13	------	118	41	30	872	20	10	12
31	30	------	13	13	------	114	------	52	------	18	10	------
TOTAL	1,210	1,073	789	296.0	18,289	16,110	1,615	1,308	3,077	1,469	446	414
MEAN	39.0	35.8	25.5	9.55	653	520	53.8	42.2	103	47.4	14.4	13.8
MAX	167	79	50	13	7,880	3,280	100	76	872	338	28	40
MIN	12	22	13	7.0	12	60	40	30	28	18	10	10
CFSM	.10	.09	.06	.02	1.60	1.28	.13	.10	.25	.12	.04	.03
IN.	.11	.10	.07	.03	1.67	1.47	.15	.12	.28	.13	.04	.04
AC-FT	2,400	2,130	1,560	587	36,280	31,950	3,200	2,590	6,100	2,910	885	821

CAL YR 1970 TOTAL 20,034.0 MEAN 54.9 MAX 895 MIN 12 CFSM .13 IN 1.83 AC-FT 39,740
WTR YR 1971 TOTAL 46,096.0 MEAN 126 MAX 7,880 MIN 7.0 CFSM .31 IN 4.21 AC-FT 91,430

PEAK DISCHARGE (BASE, 5,000 CFS).--Feb. 19 (0330) 17,000 cfs (23.70 ft); Mar. 13 (2100) 7,400 cfs (14.50 ft).

06609500 BOYER RIVER AT LOGAN, IOWA

LOCATION.--Lat 41°38'31", long 95°47'04", in SE1/4 NW1/4 sec.19, T.79 N., R.42 W., Harrison County, on left bank 9 ft downstream from Illinois Central Railroad bridge at Logan, 0.4 mile downstream from Elk Grove Creek, 10.5 miles upstream from Willow Creek, and 15.8 miles upstream from mouth.
DRAINAGE AREA.--871 sq mi.
PERIOD OF RECORD.--May 1918 to July 1925, November 1937 to current year. Monthly discharge only for some periods, published in WSP 1310.
GAGE.--Water-stage recorder. Datum of gage is 1,009.38 ft above mean sea level (Chicago and North Western Railway Company bench mark). See WSP 1918 for history of changes prior to Oct. 18, 1960.
AVERAGE DISCHARGE.--39 years (1918-24, 1938-71), 295 cfs (4.60 inches per year, 213,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 25,000 cfs Feb. 19 (gage height, 22.65 ft, from floodmarks); minimum daily, 14 cfs Jan. 7-9.
Period of record: Maximum discharge, 25,000 cfs Feb. 19, 1971 (gage height, 22.65 ft, from floodmark); maximum gage height, 25.22 ft Mar. 1, 1965 (backwater from ice); minimum daily discharge, 1.5 cfs July 16, 1938.
REMARKS.--Records fair except those for winter periods, which are poor. Records of periodic chemical and suspended sediment analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEAR).--WSP 956: 1938-39. WSP 1240: 1918-19, 1920 (M), 1921, 1922 (M) 1924-25, 1938 (M), 1945. WSP 1440: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	67	80	30	20	400	326	117	152	305	56	23
2	31	66	95	27	20	320	273	111	115	176	48	23
3	29	71	110	24	19	270	222	115	107	129	50	25
4	28	72	94	20	19	240	209	115	103	105	54	26
5	27	76	75	16	19	260	204	126	99	97	75	29
6	28	68	50	15	18	280	196	131	252	423	71	34
7	28	66	60	14	17	250	233	154	916	211	54	34
8	54	63	65	14	16	170	244	184	1,350	309	51	28
9	224	76	75	14	15	180	237	152	892	207	49	26
10	417	136	70	15	15	300	226	148	695	478	46	25
11	223	105	65	15	16	2,500	198	158	295	250	42	25
12	152	92	60	15	16	5,010	192	144	158	268	41	24
13	113	89	62	15	17	6,810	184	131	146	150	41	24
14	103	83	65	15	20	5,170	178	122	110	108	38	24
15	89	78	64	15	30	1,720	166	113	89	81	36	23
16	76	71	62	16	60	662	158	105	78	61	35	22
17	75	71	60	16	120	463	162	102	67	71	35	24
18	74	85	58	16	5,000	439	166	117	68	61	34	22
19	72	92	56	16	17,300	354	160	188	74	58	33	23
20	72	127	54	16	5,630	237	150	246	71	62	32	23
21	66	129	52	17	2,210	292	174	174	60	64	32	21
22	61	111	50	17	900	329	222	156	55	64	32	24
23	63	90	48	18	550	308	164	144	54	66	30	23
24	79	80	46	19	350	270	142	204	54	82	31	22
25	76	70	44	20	280	270	136	174	49	79	29	28
26	61	70	42	20	380	251	118	222	49	64	28	32
27	75	72	40	20	400	237	117	164	44	52	28	34
28	75	72	38	20	400	1,810	117	148	41	52	25	32
29	68	72	36	20	------	1,050	133	129	39	46	24	28
30	67	75	34	20	------	456	135	115	1,680	57	24	27
31	71	------	32	20	------	360	------	127	------	54	23	------
TOTAL	2,709	2,495	1,842	555	33,857	31,668	5,542	4,536	7,962	4,290	1,227	778
MEAN	87.4	83.2	59.4	17.9	1,209	1,022	185	146	265	138	39.6	25.9
MAX	417	136	110	30	17,300	6,810	326	246	1,680	478	75	34
MIN	27	63	32	14	15	170	117	102	39	46	23	21
CFSM	.10	.10	.07	.02	1.39	1.17	.21	.17	.30	.16	.05	.03
IN.	.12	.11	.08	.02	1.45	1.35	.24	.19	.34	.18	.05	.03
AC-FT	5,370	4,950	3,650	1,100	67,160	62,810	10,990	9,000	15,790	8,510	2,430	1,540

CAL YR 1970 TOTAL 43,746 MEAN 120 MAX 1,470 MIN 20 CFSM .14 IN 1.87 AC-FT 86,770
WTR YR 1971 TOTAL 97,461 MEAN 267 MAX 17,300 MIN 14 CFSM .31 IN 4.16 AC-FT 193,300

PEAK DISCHARGE (BASE, 6,000 CFS).--Feb. 19 (0230) 25,000 cfs (22.65 ft); Mar. 13 (2200) 14,200 cfs (16.28 ft).

06610000 MISSOURI RIVER AT OMAHA, NEBRASKA

LOCATION.--Lat 41°15'32", long 95°55'20", in SE1/4 NW1/4 sec.23, T.15 N., R.13 E., Douglas County, on right bank on left side of concrete floodwall, at foot of Douglas Street, 275 ft downstream from Interstate 480 Highway bridge in Omaha, and at mile 615.9.
DRAINAGE AREA.--322,800 sq mi, approximately.
PERIOD OF RECORD.--September 1928 to current year. April 1872 to December 1899 (gage heights only) in reports of the Missouri River Commission and since January 1875 (gage heights only) in reports of the U.S. Weather Bureau.
GAGE.--Water-stage recorder. Datum of gage is 958.24 ft above mean sea level. See WSP 1730 for history of changes prior to Sept. 30, 1936.
AVERAGE DISCHARGE.--43 years, 28,390 cfs (20,570,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 91,900 cfs Mar. 14 (gage height, 13.94 ft); maximum gage height, 14.08 ft June 11; minimum daily discharge, 9,000 cfs Jan. 8, 9.
Period of record: Maximum discharge, 396,000 cfs Apr. 18, 1952 (gage height, 30.20 ft); minimum, about 2,200 cfs Jan. 6, 1937; minimum gage height observed, -2.77 ft Jan. 10, 1957, result of freezeup.
REMARKS.--Records good except those for winter period, which are poor. Flow partly regulated by upstream main-stem reservoirs.
REVISIONS.--WSP 761: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42,300	42,700	39,300	18,100	15,700	30,300	47,900	36,400	48,300	53,300	48,500	48,300
2	40,100	43,800	38,900	18,500	16,000	27,800	48,200	36,500	48,900	51,300	48,700	47,600
3	40,400	44,000	38,200	18,500	15,800	26,900	45,600	36,200	48,600	49,600	49,300	48,300
4	39,900	43,700	37,500	17,300	14,500	26,800	43,300	36,200	48,200	48,900	49,600	49,600
5	39,300	43,700	34,900	16,200	14,500	26,600	43,300	36,200	50,800	48,600	50,000	50,500
6	39,700	42,800	31,700	14,000	16,500	26,500	42,900	37,100	60,600	49,200	49,200	50,200
7	41,700	42,300	29,400	12,000	18,500	26,400	41,500	37,700	71,000	50,100	48,300	48,800
8	44,500	42,700	26,600	9,000	18,700	25,600	41,200	37,000	77,800	50,900	47,800	49,600
9	47,200	44,400	24,200	9,000	17,700	24,300	41,000	36,700	73,600	51,200	48,400	50,100
10	45,300	44,300	22,400	9,500	17,500	25,000	38,800	39,500	74,900	52,900	48,600	50,000
11	45,000	43,700	20,800	12,000	17,700	29,600	38,100	48,900	79,700	54,700	48,900	49,000
12	44,600	43,700	19,600	14,000	17,500	43,400	37,900	51,400	77,600	55,200	48,700	48,600
13	44,400	44,000	19,800	14,000	18,400	60,900	38,300	52,600	72,300	55,200	49,200	48,800
14	44,300	44,500	20,200	13,500	19,700	76,800	38,200	50,400	71,400	53,900	49,400	49,000
15	43,500	45,000	20,300	13,000	20,200	46,100	38,100	48,800	69,600	53,400	49,000	49,000
16	42,900	44,600	20,100	13,000	19,900	32,100	37,600	47,700	63,200	51,800	48,500	48,700
17	42,100	43,500	20,000	12,600	20,400	31,700	37,000	47,700	61,300	51,600	48,200	48,900
18	42,300	42,600	20,400	12,400	23,800	35,000	37,100	49,300	58,900	51,300	48,300	49,500
19	42,800	42,300	20,800	11,500	52,000	38,500	37,600	49,200	51,800	50,000	48,400	49,500
20	42,800	43,000	19,900	14,000	57,100	40,700	38,000	47,900	50,500	49,200	49,700	49,600
21	43,400	42,100	19,400	14,500	68,400	41,500	38,100	46,200	54,000	48,600	49,300	49,800
22	42,400	42,600	18,900	15,000	61,500	43,800	37,700	45,100	52,900	49,300	48,300	49,900
23	42,400	42,400	18,900	15,500	52,100	45,600	37,600	47,100	51,400	49,600	48,300	50,600
24	42,300	40,400	19,300	16,000	40,900	44,700	37,300	49,400	51,100	50,000	48,800	49,900
25	42,000	40,700	17,400	16,500	34,400	44,700	37,200	52,400	51,500	50,300	49,100	49,100
26	42,500	40,500	16,700	16,500	33,600	44,100	37,600	51,200	50,700	50,400	48,500	49,400
27	43,200	39,700	16,900	17,000	33,200	42,800	38,300	52,700	51,000	49,600	48,500	48,900
28	42,300	39,200	17,400	17,000	32,300	45,900	38,700	52,100	50,700	50,300	49,000	49,000
29	41,300	38,800	17,200	17,000	------	47,800	38,000	50,900	50,700	49,900	49,000	49,000
30	41,400	38,900	16,500	15,700	------	47,500	36,500	49,400	54,800	49,700	49,300	48,000
31	42,100	------	16,700	15,300	------	46,000	------	48,000	------	49,200	48,800	------
TOTAL	1,320.4M	1,276.6M	720,300	448,100	788,500	1,195.4M	1,188.6M	1,407.9M	1,777.8M	1,579.2M	1,513.6M	1,477.2M
MEAN	42,590	42,550	23,240	14,450	28,160	38,560	39,620	45,420	59,260	50,940	48,830	49,240
MAX	47,200	45,000	39,300	18,500	68,400	76,800	48,200	52,700	79,700	55,200	50,000	50,600
MIN	39,300	38,800	16,500	9,000	14,500	24,300	36,500	36,200	48,200	48,600	47,800	47,600
AC-FT	2,619M	2,532M	1,429M	888,800	1,564M	2,371M	2,358M	2,793M	3,526M	3,132M	3,002M	2,930M

CAL YR 1970 TOTAL 12,472,100 MEAN 34,170 MAX 47,200 MIN 10,000 AC-FT 24,740,000
WTR YR 1971 TOTAL 14,693,600 MEAN 40,260 MAX 79,700 MIN 9,000 AC-FT 29,140,000

M Expressed in thousands.

06610500 INDIAN CREEK AT COUNCIL BLUFFS, IOWA

LOCATION.--Lat 41°17'32", long 95°49'59", in SE1/4 SW1/4 sec.18, T.75 N., R.43 W., Pottawattamie County on left bank at downstream side of first bridge off State Highway 183, on Mud Hollow Road at north edge of Council Bluffs, 8.8 miles upstream from mouth.
DRAINAGE AREA.--7.99 sq mi.
PERIOD OF RECORD.--July 1954 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,038.86 ft above mean sea level (city of Council Bluffs bench mark). Prior to Apr. 12, 1955, nonrecording gage at site a quarter of a mile downstream at different datum.
AVERAGE DISCHARGE.--17 years, 1.52 cfs (2.58 inches per year, 1,100 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,100 cfs May 10 (gage height, 10.50 ft); no flow Mar. 1-8.
Period of record: Maximum discharge, 2,980 cfs Sept. 7, 1965 (gage height, 15.36 ft); no flow at times most years.
REMARKS.--Records fair except those above 30 cfs and those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Mar. 26 to Apr. 20, May 11-13, Aug. 4-18; stage-discharge relation affected by ice Nov. 15, 16, 22-26, Dec. 4-6, 10-13, Dec. 18 to Mar. 12, Mar. 19, 20, 23-25).

2.02	.03	2.6	3.9
2.1	.19	2.9	8.6
2.2	.49	3.1	14
2.3	1.0	3.5	33
2.4	1.7	4.0	64

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.22	.45	.70	.60	.40	0	.91	.80	1.5	2.0	.27	.22
2	.22	.57	.53	.50	.40	0	.80	.61	1.3	.91	.49	.24
3	.36	1.0	.49	.45	.40	0	.91	.57	1.2	1.8	.49	.24
4	.33	.75	.50	.40	.40	0	.85	.70	1.2	1.4	3.4	.39
5	.39	.57	.45	.40	.40	0	1.1	.80	1.2	1.1	.53	.33
6	.42	.57	.35	.40	.40	0	1.0	2.0	1.2	.85	.42	.24
7	.42	.53	.45	.40	.40	0	.85	4.2	1.2	.61	.39	.27
8	1.8	.57	.65	.40	.40	0	.91	1.9	1.0	.53	.42	.27
9	8.8	1.5	.53	.40	.40	.10	.80	1.3	1.0	.88	.39	.19
10	1.8	.97	1.0	.40	.40	.50	.70	62	1.6	1.3	.36	.17
11	1.1	.80	1.1	.40	.40	2.0	.85	31	1.1	.75	.30	.13
12	.97	.70	.80	.40	.40	15	.75	6.1	.91	.61	.33	.11
13	.57	.65	.80	.40	.40	8.8	.65	3.1	.85	.49	.30	.07
14	.33	.61	.80	.40	.40	5.5	.65	2.4	.80	.49	.27	.09
15	.33	.40	.97	.40	.60	3.2	.70	1.8	.75	.45	.27	.07
16	.36	.45	1.1	.40	1.0	2.2	.80	1.8	.70	.36	.27	.03
17	.30	.53	1.0	.40	2.0	1.8	.80	1.8	.65	.39	.39	.05
18	.27	.53	.80	.40	5.0	1.9	.80	10	.85	.42	.53	.05
19	.42	.61	.75	.40	2.0	2.1	.85	7.5	.75	.33	.97	.07
20	.39	.61	.70	.40	1.0	1.4	1.4	4.2	.65	.36	.80	.03
21	.39	.57	.65	.45	.60	1.3	1.6	3.2	.57	.30	.42	.03
22	.45	.45	.60	.50	.40	1.2	.97	2.7	5.3	.30	.30	.05
23	2.3	.10	.50	.50	.35	1.3	.75	2.6	1.9	.36	.22	.07
24	.97	.05	.40	.50	.30	1.3	.80	2.4	1.1	.33	.15	.07
25	.70	.60	.50	.50	.25	1.2	.70	2.2	.80	.36	.09	.52
26	1.2	1.0	.60	.50	.20	1.1	.61	1.7	.70	.33	.09	.30
27	1.0	1.0	.60	.45	.15	1.2	1.0	1.6	.57	.33	.09	.15
28	.61	.91	.50	.40	.10	1.0	.80	1.6	.49	.39	.15	.13
29	.57	.85	.40	.40	------	.97	.85	1.5	2.4	.24	.17	.11
30	.53	.85	.45	.40	------	.91	.80	1.5	11	.27	.15	.09
31	.45	------	.50	.40	------	1.0	------	1.7	------	.24	.19	------
TOTAL	28.97	19.75	20.17	13.35	19.55	56.98	25.96	167.28	45.24	19.48	13.61	4.78
MEAN	.93	.66	.65	.43	.70	1.84	.87	5.40	1.51	.63	.44	.16
MAX	8.8	1.5	1.1	.60	5.0	15	1.6	62	11	2.0	3.4	.52
MIN	.22	.05	.35	.40	.10	0	.61	.57	.49	.24	.09	.03
CFSM	.12	.08	.08	.05	.09	.23	.11	.68	.19	.08	.06	.02
IN.	.13	.09	.09	.06	.09	.27	.12	.78	.21	.09	.06	.02
AC-FT	57	39	40	26	39	113	51	332	90	39	27	9.5

CAL YR 1970 TOTAL 184.76 MEAN .51 MAX 10 MIN 0 CFSM .06 IN .86 AC-FT 366
WTR YR 1971 TOTAL 435.12 MEAN 1.19 MAX 62 MIN 0 CFSM .15 IN 2.03 AC-FT 863

PEAK DISCHARGE (BASE, 700 CFS).--May 10 (2100) 1,100 cfs (10.50 ft).

06610520 MOSQUITO CREEK NEAR EARLING, IOWA

LOCATION.--Lat 41°45'10", long 95°27'50", in N1/2 SE1/4 sec.11, T.80 N., R.40 W., on right bank at stream-stabilization structure 1,300 ft downstream from bridge on State Highway 191, 0.5 mile downstream from small left-bank tributary and 2.3 miles southwest of Earling.
DRAINAGE AREA.--32.0 sq mi.
PERIOD OF RECORD.--August 1965 to current year.
GAGE.--Duplex water-stage recorder. Datum of gage is 1,222.56 ft above mean sea level. Gage heights obtained of headwater (base gage) and tailwater (supplementary gage) elevations at stream-stabilization structure.
AVERAGE DISCHARGE.--6 years, 9.33 cfs (3.96 inches per year, 6,760 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,960 cfs June 30 (gage height, 22.30 ft); maximum gage height, 22.97 ft Feb. 18 (backwater from ice); no flow Sept. 7-9.
Period of record: Maximum discharge, 2,960 cfs June 15, 1967 (gage height, 24.42 ft, from floodmarks); no flow Aug. 21, 22, 26-30, 1970, Sept. 7-9, 1971.
REMARKS.--Records fair except those for winter periods, which are poor. The stabilization structure is a dam approximately 16 ft high constructed of sheet piling and derrick stone. The crest of the cut-off piling is rectangular in shape at low stages and trapezoidal at high stages. Daily discharges computed from headwater gage readings.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 27 to Nov. 5, June 29 to July 19, July 28 to Aug. 8; stage-discharge relation affected by ice Nov. 23-26, Dec. 4 to Mar. 4).

18.06	0	18.5	8.0	19.0	55
18.1	.36	18.7	13	19.5	219
18.2	1.6	18.8	20	20.0	445
18.3	3.4	18.9	35	20.5	710
18.4	5.6				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	1.0	2.6	.05	.30	9.0	3.6	2.2	1.3	5.1	.66	.18
2	.09	1.2	1.8	.05	.40	4.5	2.8	1.9	1.2	2.8	.56	.18
3	.09	1.9	2.1	.04	.40	10	1.9	1.8	1.4	3.0	.56	.46
4	.18	4.0	1.8	.03	.40	9.0	1.9	1.6	1.2	3.6	.62	.36
5	.18	4.2	1.5	.02	.40	6.7	1.9	1.6	1.4	2.8	.56	.46
6	.09	5.8	1.2	.02	.40	3.8	2.4	1.9	3.4	2.1	.66	.18
7	.18	7.0	1.2	.02	.40	2.8	3.0	5.6	6.7	2.1	.76	0
8	4.2	8.2	1.5	.02	.40	4.6	3.4	3.4	61	72	.76	0
9	10	14	2.0	.02	.40	4.9	2.6	2.1	11	4.6	.66	0
10	2.8	4.2	2.5	.02	.50	190	2.6	3.2	8.2	138	.56	.18
11	.36	2.6	1.5	.02	.80	518	3.2	2.6	5.3	6.5	.46	.18
12	.36	3.0	1.2	.02	.90	301	2.6	1.9	4.4	2.4	.56	.09
13	.36	3.4	1.1	.02	.70	190	2.4	1.6	3.4	1.4	.56	.09
14	.27	2.4	1.0	.02	.70	13	1.9	1.4	3.6	1.4	.76	.09
15	.18	1.9	1.0	.02	1.0	7.0	1.8	1.4	3.0	1.3	.46	.09
16	.09	1.8	1.0	.02	150	5.1	1.8	1.4	2.6	1.2	.46	.09
17	.18	1.9	1.0	.02	300	4.6	2.2	1.4	2.4	1.2	.66	.18
18	.27	2.2	.95	.02	900	3.2	2.1	1.7	3.0	1.2	.18	.18
19	.46	3.4	.50	.02	300	1.4	1.9	2.2	2.0	1.6	.56	.18
20	.27	3.4	.40	.02	20	3.8	2.6	2.4	1.6	1.2	.66	.18
21	.18	2.4	.30	.03	4.0	4.4	3.0	2.0	1.4	1.2	.56	.18
22	.09	1.6	.20	.04	1.8	3.0	1.2	2.0	1.2	1.2	.27	.18
23	.46	.80	.10	.06	3.0	2.2	1.3	2.0	1.2	2.0	.46	.36
24	.36	.80	.08	.10	7.0	3.0	1.6	1.8	1.0	1.0	.36	.36
25	.46	.90	.07	.20	7.5	2.8	2.8	1.7	.95	1.4	.36	.88
26	.66	.95	.06	.20	8.5	4.0	2.1	1.6	.90	1.2	.18	.76
27	1.4	1.0	.05	.20	11	6.2	3.0	1.4	.85	1.0	.18	.66
28	.36	1.3	.05	.20	12	6.2	2.8	1.2	.80	.88	.27	.56
29	.66	1.6	.05	.30	------	4.6	2.6	1.2	99	.76	.36	.56
30	.76	1.6	.05	.30	------	5.3	2.6	1.2	273	.88	.09	.46
31	1.0	------	.05	.30	------	5.8	------	1.5	------	.76	.18	------
TOTAL	27.09	90.45	28.91	2.42	1,732.90	1,339.9	71.6	60.9	508.40	267.78	14.95	8.31
MEAN	.87	3.02	.93	.078	61.9	43.2	2.39	1.96	16.9	8.64	.48	.28
MAX	10	14	2.6	.30	900	518	3.6	5.6	273	138	.76	.88
MIN	.09	.80	.05	.02	.30	1.4	1.2	1.2	.80	.76	.09	0
CFSM	.03	.09	.03	.002	1.93	1.35	.07	.06	.53	.27	.02	.009
IN.	.03	.11	.03	.002	2.01	1.56	.08	.07	.59	.31	.02	.009
AC-FT	54	179	57	4.8	3,440	2,660	142	121	1,010	531	30	16

CAL YR 1970 TOTAL 1,392.69 MEAN 3.82 MAX 302 MIN 0 CFSM .12 IN 1.62 AC-FT 2,760
WTR YR 1971 TOTAL 4,153.61 MEAN 11.4 MAX 900 MIN 0 CFSM .36 IN 4.83 AC-FT 8,240

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-18	--	--	* 1,800	6-30	0100	22.30	1,960
3-11	1630	21.75	1,540	7-10	0830	20.94	835
6-8	1615	20.50	710				

* About

06807000 MISSOURI RIVER AT NEBRASKA CITY, NEBR.
(International Hydrological Decade River Station)

LOCATION.--Lat 40°40'55", long 95°50'48", in NW1/4 NE1/4 sec.9, T.8 N., R.14 E., Otto County, on right bank 0.7 mile upstream from Waubonsie Highway Bridge at Nebraska City, and at mile 562.6.
DRAINAGE AREA.--414,400 sq mi, approximately.
PERIOD OF RECORD.--August 1929 to current year. Gage-height records collected in this vicinity from August 1878 to December 1899 are contained in reports of Missouri River Commission.
GAGE.--Water-stage recorder. Datum of gage is 905.36 ft above mean sea level, datum of 1929, supplementary adjustment of 1954. See WSP 1918 or 1919 for history of changes prior to Apr. 1, 1963.
AVERAGE DISCHARGE.--42 years, 34,180 cfs (24,760,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 114,000 cfs Feb. 22 (gage height, 18.45 ft); maximum gage height, 18.98 ft June 12; minimum daily discharge, 9,500 cfs Jan. 10, 11; minimum gage height, 0.40 ft Jan. 7.
Period of record: Maximum discharge, 414,000 cfs Apr. 19, 1952; maximum gage height, 27.66 ft Apr. 18, 1952; minimum discharge, 1,600 cfs Dec. 31, 1946 (discharge measurement); minimum gage height observed, -0.28 ft Dec. 24, 1960, result of freezeup.
REMARKS.--Records good except those for winter period, which are poor. Flow partly regulated by upstream mainstem reservoirs. Records of periodic chemical analyses for the current year are published in Part 2, Water Resources Data for Nebraska.
REVISIONS.--WSP 761: Drainage area.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42,400	50,300	44,200	18,800	20,500	50,000	58,000	44,800	65,800	63,800	51,000	49,600
2	42,400	50,600	45,400	19,600	21,000	46,800	58,000	44,500	66,200	64,600	51,000	48,200
3	42,400	50,300	45,400	20,000	21,300	43,600	56,200	43,900	65,800	63,800	52,000	47,800
4	42,100	50,000	45,400	19,400	19,000	41,500	54,000	43,900	64,200	60,600	52,000	48,200
5	41,200	49,200	42,400	17,600	21,000	40,000	52,000	44,200	63,800	59,400	51,700	50,000
6	40,600	48,200	38,500	16,000	23,000	40,000	51,000	43,600	72,200	59,800	50,300	50,600
7	42,100	47,200	35,600	10,300	21,500	39,400	49,600	48,900	84,000	59,800	50,300	51,400
8	47,200	47,800	32,800	10,000	20,500	39,400	48,600	51,400	93,400	58,700	49,600	50,600
9	55,200	51,000	30,600	10,000	20,000	37,400	47,800	49,600	93,000	60,600	50,000	50,600
10	57,300	53,400	30,200	9,500	20,000	36,600	46,100	53,100	90,700	61,400	50,300	51,400
11	53,100	51,400	29,000	9,500	20,500	43,000	44,800	82,600	93,000	64,200	50,000	51,000
12	52,000	50,600	27,000	10,000	21,500	70,200	46,100	75,800	100,000	69,000	50,300	50,000
13	51,400	50,300	25,000	12,000	22,500	87,100	45,400	73,800	97,500	66,200	51,000	48,900
14	51,000	50,000	24,500	14,000	23,500	99,500	45,400	67,400	92,500	61,400	50,000	48,900
15	52,000	50,300	24,800	16,000	24,500	85,300	44,800	64,600	92,000	59,000	49,200	49,600
16	51,400	49,600	24,300	16,000	26,500	56,600	44,500	63,000	87,100	57,000	49,200	49,600
17	49,200	48,600	23,600	15,000	30,000	48,200	44,200	62,600	79,900	54,800	49,600	48,900
18	48,200	47,800	23,800	15,000	38,800	46,400	43,600	68,200	76,300	54,200	49,200	48,900
19	46,100	47,500	24,800	16,000	48,900	47,800	43,900	69,800	70,600	53,400	49,200	49,600
20	45,400	48,600	23,800	17,000	96,600	49,600	43,300	67,000	60,600	54,200	50,300	49,200
21	45,400	48,900	23,000	19,000	106,000	51,700	43,900	65,000	65,800	52,400	50,600	48,600
22	45,800	48,900	21,800	20,000	112,000	53,800	43,600	62,600	66,600	50,600	50,300	48,900
23	47,500	48,600	21,200	20,500	106,000	56,600	43,900	60,600	65,000	50,000	49,200	50,000
24	47,800	45,400	21,200	20,500	78,100	56,000	43,900	62,600	63,400	50,300	49,200	51,700
25	47,800	43,000	20,400	21,000	58,000	54,500	44,800	66,600	62,400	50,600	50,300	51,500
26	47,800	43,600	18,600	21,500	53,100	53,800	44,500	65,400	61,400	51,700	50,300	51,500
27	50,000	43,000	18,400	21,000	53,400	52,000	44,800	66,200	60,200	52,000	50,300	51,400
28	50,300	42,400	18,400	21,000	53,400	53,800	45,800	67,400	59,400	53,100	49,600	51,000
29	48,200	41,200	18,600	22,000	------	58,700	46,400	66,600	58,400	53,400	49,200	51,500
30	47,800	42,100	18,400	23,000	------	59,000	45,400	65,800	63,800	53,400	48,900	52,000
31	49,600	------	18,400	23,000	------	57,300	------	64,200	------	52,400	48,900	------
TOTAL	1,480.7M	1,439.8M	859,500	524,200	1,181.1M	1,655.6M	1,414.3M	1,875.7M	2,235.0M	1,775.8M	1,553.0M	1,501.1M
MEAN	47,760	47,990	27,730	16,910	42,180	53,410	47,140	60,510	74,500	57,280	50,100	50,040
MAX	57,300	53,400	45,400	23,000	112,000	99,500	58,000	82,600	100,000	69,000	52,000	52,000
MIN	40,600	41,200	18,400	9,500	19,000	36,600	43,300	43,600	58,400	50,000	48,900	47,800
AC-FT	2,937M	2,856M	1,705M	1,040M	2,343M	3,284M	2,805M	3,720M	4,433M	3,522M	3,080M	2,977M

CAL YR 1970 TOTAL 14,191,700 MEAN 38,880 MAX 57,300 MIN 10,500 AC-FT 28,150,000
WTR YR 1971 TOTAL 17,495,800 MEAN 47,930 MAX 112,000 MIN 9,500 AC-FT 34,700,000

M Expressed in thousands.

06807410 WEST NISHNABOTNA RIVER AT HANCOCK, IOWA

LOCATION.--Lat 41°23'24", long 95°22'17", in NE1/4 sec.18, T.76 N., R.39 W., Pottawattamie County, on downstream end of right pier of bridge on county highway G30, 0.6 mile west of Hancock school, and 3.0 miles downstream from Jim Creek.
DRAINAGE AREA.--609 sq mi.
PERIOD OF RECORD.--October 1959 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,085.94 ft above mean sea level.
AVERAGE DISCHARGE.--12 years, 209 cfs (4.66 inches per year, 151,400 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 17,700 cfs Feb. 19 (gage height, 18.56 ft, from floodmarks); minimum daily, 2.2 cfs Feb. 8, 9.
Period of record: Maximum discharge, about 18,000 cfs Mar. 1, 1965; maximum gage height, 20.44 ft Mar. 1, 1965 (backwater from ice); minimum daily discharge, 2.2 cfs Feb. 8, 9, 1971.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Apr. 9 to May 7, May 13-27, June 1, June 6-10, 14, 15; stage-discharge relation affected by ice Nov. 15-17, Nov. 22 to Feb. 18, Feb. 22-28, Mar. 2-5, 8, 9).

Oct. 1 to Feb. 18		Feb. 19 to Sept. 30			
1.57	16	0.98	12	4.0	895
1.8	29	1.2	30	6.0	2,040
2.0	46	1.5	70	9.0	4,600
2.5	118	2.0	174	15.0	11,900
3.0	218	3.0	480	17.0	15,000

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	29	30	17	2.7	546	132	57	108	210	36	19
2	17	29	28	17	2.7	380	114	56	104	102	37	20
3	16	30	26	14	2.7	300	99	53	102	84	52	18
4	16	31	22	10	2.7	260	97	52	101	79	43	17
5	16	31	20	7.0	2.7	350	95	53	93	75	44	18
6	17	30	18	5.0	2.6	266	88	56	1,710	65	41	17
7	17	29	19	4.0	2.4	218	86	77	622	60	39	15
8	25	25	21	3.5	2.2	200	83	102	317	68	39	15
9	150	41	21	3.2	2.2	200	81	99	424	160	38	15
10	140	83	18	3.0	2.4	385	77	86	126	147	37	14
11	74	64	17	2.8	2.8	2,060	75	88	100	292	34	13
12	53	44	17	2.7	2.9	3,530	72	79	90	112	32	13
13	40	38	17	2.7	3.0	3,630	72	70	167	88	32	13
14	35	36	17	2.7	3.0	3,120	68	64	618	74	31	13
15	31	31	16	2.7	3.5	764	68	57	126	67	31	12
16	30	29	16	2.6	10	377	70	52	110	60	31	12
17	29	31	16	2.6	300	272	72	55	102	57	29	12
18	28	32	16	2.6	5,000	225	74	347	102	55	27	12
19	27	33	16	2.6	13,700	179	72	221	102	50	28	12
20	26	38	16	2.6	3,150	169	72	169	97	48	30	12
21	26	36	16	2.6	550	195	88	132	86	46	29	12
22	24	32	16	2.7	240	192	86	130	81	44	27	12
23	31	20	15	2.8	200	195	74	124	75	44	26	12
24	30	14	15	3.0	250	143	67	124	72	43	23	12
25	26	15	15	3.5	300	141	64	122	68	43	22	17
26	30	18	15	3.3	350	150	59	114	68	41	22	22
27	40	20	15	2.8	400	124	70	110	64	41	21	19
28	31	23	15	2.8	550	227	67	108	55	41	20	15
29	34	25	15	2.8	------	223	60	102	53	41	20	13
30	29	27	15	2.8	------	151	57	102	285	37	20	14
31	29	------	16	2.7	------	132	------	106	------	36	19	------
TOTAL	1,135	964	555	142.1	25,040.5	19,304	2,359	3,167	6,228	2,410	960	440
MEAN	36.6	32.1	17.9	4.58	894	623	78.6	102	208	77.7	31.0	14.7
MAX	150	83	30	17	13,700	3,630	132	347	1,710	292	52	22
MIN	16	14	15	2.6	2.2	124	57	52	53	36	19	12
CFSM	.06	.05	.03	.008	1.47	1.02	.13	.17	.34	.13	.05	.02
IN.	.07	.06	.03	.008	1.53	1.18	.14	.19	.38	.15	.06	.03
AC-FT	2,250	1,910	1,100	282	49,670	38,290	4,680	6,280	12,350	4,780	1,900	873

CAL YR 1970 TOTAL 28,949. MEAN 79.3 MAX 2,170 MIN 14 CFSM .13 IN 1.77 AC-FT 57,420
WTR YR 1971 TOTAL 62,704.6 MEAN 172 MAX 13,700 MIN 2.2 CFSM .28 IN 3.83 AC-FT 124,400

PEAK DISCHARGE (BASE, 4,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-19	0600	18.56	17,700	6-6	1230	10.28	5,610
3-14	0030	10.98	6,730				

06808500 WEST NISHNABOTNA RIVER AT RANDOLPH, IOWA

LOCATION.--Lat 40°52'23", long 95°34'48", in NE1/4 NE1/4 sec.17, T.70 N., R.41 W., Fremont County, on right bank on downstream side of bridge on State Highway 184, 0.3 mile downstream from Deer Creek, 0.5 mile west of Randolph, and 16.2 miles upstream from confluence with East Nishnabotna River.
DRAINAGE AREA.--1,326 sq mi.
PERIOD OF RECORD.--June 1948 to current year.
GAGE.--Water-stage recorder. Datum of gage is 932.99 ft above mean sea level, unadjusted. Prior to Aug. 26, 1955, nonrecording gage and June 30, 1949, to Aug. 25, 1955, supplementary water-stage recorder, operating above gage height 8.4 ft at same site and datum.
AVERAGE DISCHARGE.--23 years, 482 cfs (4.94 inches per year, 349,200 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 20,000 cfs Feb. 19 (gage height, 19.00 ft); minimum daily, 45 cfs Feb. 8-10.
Period of record: Maximum discharge, 35,500 cfs June 21, 1967 (gage height, 22.60 ft); maximum gage height, 24.8 ft Mar. 5, 1949, from graph based on gage readings (backwater from ice); minimum daily discharge, 10 cfs Dec. 17-21, 1955.
Flood in June 1947 reached a stage of about 24 ft, (discharge not determined), from information by local residents.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical and susupended-sediment analyses for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1440: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used May 21 to June 30; stage-discharge relation affected by ice Nov. 15, 16, 22-29, Dec. 6, 7, Dec. 11 to Feb. 18, Feb. 22-27, Mar. 3, 4).

6.66	47	10.0	1,560
7.0	92	12.0	3,590
7.4	177	14.0	6,790
8.0	369	17.0	13,900
9.0	850	19.0	20,000

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	59	109	138	70	60	1,260	318	150	308	442	116	63
2	59	107	135	70	58	762	304	152	294	350	111	62
3	58	114	126	68	56	450	277	152	277	261	122	62
4	58	120	118	64	54	470	258	145	271	242	147	62
5	59	116	113	60	52	1,200	255	145	267	218	162	61
6	59	113	85	55	50	1,250	248	306	354	210	128	58
7	61	109	80	55	48	695	239	576	2,770	196	116	56
8	90	109	100	55	45	424	236	369	839	188	114	56
9	224	147	107	58	45	473	227	261	572	224	111	55
10	328	160	114	60	45	586	218	325	710	354	107	51
11	245	152	105	60	46	2,320	216	2,960	406	304	100	51
12	182	160	100	60	48	5,740	216	586	402	377	95	50
13	142	145	95	60	50	5,610	213	432	394	242	92	50
14	116	130	95	60	50	5,600	210	354	727	199	90	49
15	104	115	95	60	50	2,000	207	304	739	188	89	47
16	97	112	95	60	70	964	204	274	398	172	90	48
17	94	118	92	60	250	586	204	248	354	164	89	49
18	94	124	90	60	6,000	540	204	4,300	314	160	86	50
19	90	128	88	60	18,200	514	204	1,900	287	152	84	52
20	87	140	86	60	10,700	455	201	862	294	142	90	52
21	87	138	84	61	2,010	419	224	665	264	138	102	51
22	87	100	82	62	620	419	201	550	252	135	95	50
23	111	50	80	63	500	398	193	491	236	135	90	50
24	133	80	78	64	500	362	177	518	236	135	86	50
25	111	85	76	65	550	350	164	442	224	135	78	53
26	105	90	74	66	600	343	162	419	221	133	73	58
27	185	95	72	64	650	336	157	385	204	130	70	58
28	157	110	70	62	1,310	325	150	365	190	124	69	57
29	128	125	70	62	------	350	140	339	190	122	69	59
30	120	138	70	62	------	455	140	332	472	122	67	55
31	118	------	70	62	------	347	------	339	------	118	64	------
TOTAL	3,648	3,539	2,883	1,908	42,717	36,003	6,367	19,646	13,466	6,212	3,002	1,625
MEAN	118	118	93.0	61.5	1,526	1,161	212	634	449	200	96.8	54.2
MAX	328	160	138	70	18,200	5,740	318	4,300	2,770	442	162	63
MIN	58	50	70	55	45	325	140	145	190	118	64	47
CFSM	.09	.09	.07	.05	1.15	.88	.16	.48	.34	.15	.07	.04
IN.	.10	.10	.08	.05	1.20	1.01	.18	.55	.38	.17	.08	.05
AC-FT	7,240	7,020	5,720	3,780	84,730	71,410	12,630	38,970	26,710	12,320	5,950	3,220

CAL YR 1970 TOTAL 69,113 MEAN 189 MAX 4,170 MIN 50 CFSM .14 IN 1.94 AC-FT 137,100
WTR YR 1971 TOTAL 141,016 MEAN 386 MAX 18,200 MIN 45 CFSM .29 IN 3.96 AC-FT 279,700

PEAK DISCHARGE (BASE, 6,500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	1000	19.00	20,000	5-11	0430	14.89	8,600
3-12	0900	14.90	8,620	5-18	1300	14.32	7,400

06809000 DAVIDS CREEK NEAR HAMLIN, IOWA

LOCATION.--Lat 41°40'25", long 94°48'20", in NE1/4 NE1/4 sec.9, T.79, R.34 W., Audubon County, on left bank 20 ft downstream from bridge on State Highway 64, 5.2 miles east of Hamlin, and 8 miles upstream from mouth.
DRAINAGE AREA.--26.0 sq mi.
PERIOF OF RECORD.--June 1952 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,266.54 ft above mean sea level.
AVERAGE DISCHARGE.--19 years, 9.88 cfs (5.16 inches per year, 7,160 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 734 cfs Mar. 13 (gage height, 7.76 ft); maximum gage height, 9.28 ft Feb. 18 (backwater from ice); no flow for many days.
Period of record: Maximum discharge, 22,700 cfs July 2, 1958 (gage height, 19.35 ft), from rating curve extended above 500 cfs on basis of slope-area measurement of peak flow; no flow on many days in 1952-56, 1972.
REMARKS.--Records fair except those for periods of no gage-height record or those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1440: Drainage area. WSP 1919: 1960. WRD Iowa 1966: 1961-62, 1964-65.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Oct. 6 to Nov. 3, Nov. 5-8, 10-21, Nov. 28 to Dec. 3, Apr. 2 to May 6; stage-discharge relation affected by ice Nov. 22-27, Dec. 4 to Feb. 19, Feb. 21 to Mar. 12, Mar. 18-24).

Oct. 1 to Feb. 18		Feb. 19 to Sept. 30			
2.05	0	1.07	.15	1.8	14
2.08	.3	1.10	.24	2.2	26
2.14	1.1	1.14	.48	3.0	70
2.2	2.3	1.2	1.1	4.0	158
2.3	5.2	1.3	2.6	5.0	272
2.6	17				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.11	1.1	1.5	.10	0	12	8.4	3.0	7.6	9.5	1.3	.42
2	.11	1.1	.98	.08	0	12	7.3	2.7	6.4	7.4	1.6	.44
3	.10	1.3	1.5	.05	0	12	6.4	2.6	7.3	4.4	2.3	.50
4	.10	1.0	1.5	0	0	12	5.1	3.0	7.0	4.4	3.0	.60
5	.10	.83	1.0	0	0	12	5.0	3.1	7.0	4.4	4.0	.60
6	.10	.69	.25	0	0	12	5.0	2.9	123	4.4	2.0	.50
7	.11	.31	.40	0	0	12	4.7	39	13	4.2	1.7	.45
8	5.3	.31	.80	0	0	12	4.4	22	12	5.4	1.4	.40
9	8.0	.50	.60	0	0	12	4.0	14	16	5.2	1.1	.32
10	2.7	.56	.40	0	0	15	3.9	12	11	8.6	1.0	.28
11	.50	.83	.30	0	0	60	4.1	11	9.8	5.0	.95	.26
12	.65	1.3	.20	0	0	150	3.9	10	9.3	4.4	.90	.25
13	.12	.98	.15	0	0	207	3.6	9.7	10	3.8	.85	.22
14	.03	1.1	.12	0	0	48	3.6	8.6	9.9	3.4	.82	.21
15	.06	1.3	.10	0	.10	16	3.6	8.0	8.6	3.0	.80	.20
16	.07	.98	.08	0	5.0	14	3.8	7.7	8.4	2.8	.78	.18
17	.10	1.9	.06	0	50	13	3.8	7.5	8.8	2.6	.75	.15
18	.11	1.1	.04	0	500	12	3.7	36	8.7	2.4	.72	.15
19	.21	2.8	.02	0	400	9.0	3.4	22	8.4	2.2	.71	.15
20	.31	4.6	.01	0	132	10	4.7	14	8.5	2.1	.70	.16
21	.20	2.8	0	.05	50	11	6.6	12	6.8	2.0	.70	.17
22	.43	1.5	0	.07	30	11	4.3	11	6.9	2.0	.70	.17
23	.69	.70	0	.10	20	11	3.8	11	7.3	2.0	.70	.18
24	.83	.40	0	.15	15	11	3.6	11	7.4	2.0	.70	.19
25	.31	.60	0	.20	14	12	3.6	10	6.3	2.0	.70	.19
26	1.6	.80	0	.05	13	8.6	3.5	9.5	6.1	2.0	.65	.20
27	17	1.0	0	0	12	16	4.4	9.2	5.3	1.9	.55	.20
28	3.4	1.1	0	0	12	14	3.3	8.9	4.8	1.8	.45	.20
29	2.3	1.6	.02	0	------	12	3.0	8.6	4.8	1.7	.42	.20
30	1.6	4.9	.05	0	------	11	2.9	8.4	6.3	1.5	.41	.20
31	1.3	------	.08	0	------	11	------	8.8	------	1.4	.41	------
TOTAL	48.55	39.99	10.16	.85	1,253.10	790.6	131.4	347.2	362.7	109.9	33.77	8.34
MEAN	1.57	1.33	.33	.027	44.8	25.5	4.38	11.2	12.1	3.55	1.09	.28
MAX	17	4.9	1.5	.20	500	207	8.4	39	123	9.5	4.0	.60
MIN	.03	.31	0	0	0	8.6	2.9	2.6	4.8	1.4	.41	.15
CFSM	.06	.05	.01	.001	1.72	.98	.17	.43	.47	.14	.04	.01
IN.	.07	.06	.01	.001	1.79	1.13	.19	.50	.52	.16	.05	.01
AC-FT	96	79	20	1.7	2,490	1,570	261	689	719	218	67	17

CAL YR 1970 TOTAL 1,345.55 MEAN 3.69 MAX 239 MIN 0 CFSM .14 IN 1.93 AC-FT 2,670
WTR YR 1971 TOTAL 3,136.56 MEAN 8.59 MAX 500 MIN 0 CFSM .33 IN 4.49 AC-FT 6,220

PEAK DISCHARGE (BASE, 400 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-18	--	--	* 700	6-6	0845	6.48	499
3-13	1815	7.76	734				

* About

Note.--No gage-height record Oct. 1-5, Nov. 4, 9, May 31, June 1, July 13 to Aug. 2, Aug. 4-29, Aug. 31 to Sept. 30.

06809210 EAST NISHNABOTNA RIVER NEAR ATLANTIC, IOWA

LOCATION (revised).--Lat 41°20'47", long 95°04'31", in NW1/4 NW1/4 sec.35, T.76 N., R.37 W., Cass County, on left bank at downstream side of bridge on county highway, 1.9 miles upstream from Turkey Creek, and 5.4 miles southwest of junction of U.S. Highway 6 and State Highway 83 in Atlantic.
DRAINAGE AREA.--436 sq mi (revised). Area at site used prior to Oct. 1, 1970, 432 sq mi.
PERIOD OF RECORD.--October 1960 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,105.83 ft above mean sea level. Prior to Oct. 1, 1970, at site 2.0 miles upstream at datum 5.00 ft higher.
AVERAGE DISCHARGE.--11 years, 168 cfs (5.23 inches per year, 121,700 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 15,200 cfs Feb. 19 (gage height, 17.35 ft, from floodmarks); minimum daily, 7.0 cfs Jan. 5-11.
Period of record: Maximum discharge, 20,500 cfs Mar. 1, 1965 (gage height, 20.43 ft, site and datum then in use), from rating curve extended above 9,200 cfs; minimum daily, 7.0 cfs Dec. 17-23, 1963, Jan. 5-11, 1971.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 1 to Nov. 14, Nov. 18-21, Dec. 1-3, Mar. 10, 19, 20, 23-28, Apr. 1 to May 7, May 26 to June 6; stage-discharge relation affected by ice Nov. 15-17, 22-30, Dec. 4 to Feb. 18, Feb. 21 to Mar. 9).

3.39	7.8	6.0	740
3.6	29	7.0	1,300
3.9	72	9.0	2,820
4.4	170	12.0	6,200
5.0	340	15.0	10,700

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	30	42	7.4	9.0	500	127	45	109	93	24	17
2	13	27	35	7.3	9.0	280	94	45	94	67	28	18
3	13	27	28	7.2	9.0	250	87	42	91	60	42	18
4	13	28	20	7.1	9.0	250	89	41	87	67	45	22
5	13	28	18	7.0	8.8	350	77	44	84	69	75	22
6	14	26	17	7.0	8.6	250	75	45	1,640	64	44	19
7	18	23	18	7.0	8.4	150	74	98	569	60	35	16
8	32	24	20	7.0	8.0	120	72	448	283	58	32	15
9	119	51	20	7.0	8.3	140	67	215	271	87	30	15
10	103	51	15	7.0	8.8	190	58	168	212	96	28	14
11	62	36	14	7.0	9.2	833	60	156	168	121	24	14
12	42	31	13	7.1	8.9	1,460	55	127	149	82	23	13
13	35	28	12	7.2	7.7	1,820	51	117	137	70	23	12
14	30	26	11	7.3	9.2	1,340	49	111	302	57	21	12
15	26	18	10	7.4	8.6	492	52	98	156	55	21	11
16	26	20	10	7.4	12	202	54	91	127	51	21	7.8
17	24	22	10	7.4	300	178	60	87	115	48	20	11
18	23	24	9.8	7.4	6,000	192	60	1,000	113	45	22	8.7
19	22	29	9.6	7.4	9,510	121	57	621	107	41	23	14
20	22	49	9.2	7.6	2,640	96	58	309	96	40	24	13
21	22	47	9.0	7.8	500	152	82	218	89	40	25	13
22	22	22	8.8	8.0	380	147	75	185	84	38	23	12
23	30	18	8.6	8.2	370	111	58	170	80	41	21	13
24	30	18	8.4	8.4	350	103	52	198	79	40	28	11
25	25	20	8.2	8.8	350	105	49	165	74	40	23	15
26	25	22	8.0	9.0	400	94	44	139	72	38	19	19
27	94	24	7.8	8.8	1,000	94	51	127	67	36	17	22
28	79	26	7.6	8.6	800	223	52	111	62	37	16	16
29	45	28	7.6	8.6	------	165	47	107	58	36	16	16
30	36	30	7.6	8.6	------	139	45	102	100	34	16	15
31	31	------	7.6	9.0	------	143	------	109	------	30	17	------
TOTAL	1,102	853	430.8	238.0	22,742.5	10,690	1,931	5,539	5,675	1,741	826	444.5
MEAN	35.5	28.4	13.9	7.68	812	345	64.4	179	189	56.2	26.6	14.8
MAX	119	51	42	9.0	9,510	1,820	127	1,000	1,640	121	75	22
MIN	13	18	7.6	7.0	7.7	94	44	41	58	30	16	7.8
CFSM	.08	.07	.03	.02	1.86	.79	.15	.41	.43	.13	.06	.03
IN.	.09	.07	.04	.02	1.94	.91	.16	.47	.48	.15	.07	.04
AC-FT	2,190	1,690	854	472	45,110	21,200	3,830	10,990	11,260	3,450	1,640	882

CAL YR 1970 TOTAL 31,538.8 MEAN 86.4 MAX 3,970 MIN 7.6 CFSM .20 IN 2.69 AC-FT 62,560
WTR YR 1971 TOTAL 52,212.8 MEAN 143 MAX 9,510 MIN 7.0 CFSM .33 IN 4.45 AC-FT 103,600

PEAK DISCHARGE (BASE, 3,000 CFS)

DATE	TIME	G.HT.	DISCHARGE	DATE	TIME	G.HT.	DISCHARGE
2-19	0200	17.35	15,200	6-6	1300	9.77	3,590
3-13	2300	10.48	4,320				

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IOWA

LOCATION.--Lat 41°00'41", long 95°14'07", in NW1/4 SE1/4 sec.29, T.72 N., R.38 W., Montgomery County, on left bank on downstream side of Coolbaugh Street bridge in Red Oak, and 0.2 mile upstream from Red Oak Creek.
DRAINAGE AREA.--894 sq mi.
PERIOD OF RECORD.--May 1918 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.
GAGE.--Water-stage recorder. Datum of gage is 1,005.45 ft above mean sea level, unadjusted. Prior to July 5, 1925, nonrecording gage at present site at datum 4.60 ft higher. May 29, 1936, to Nov. 13, 1952, nonrecording gage with supplementary water-stage recorder in operation above 3.2 ft gage height July 30, 1939 to Nov. 13, 1952, and Nov. 14, 1952 to June 13, 1966, water-stage recorder, all at site 0.5 mile upstream at datum 5.00 ft higher. June 14, 1966 to Sept. 30, 1969, at present site at datum 5.00 ft higher.
AVERAGE DISCHARGE.--41 years (1918-24, 1936-71), 342 cfs (5.19 inches per year, 247,800 acre-ft per year); median of yearly mean discharges, 300 cfs (4.6 inches per year, 217,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 17,000 cfs Feb. 19 (gage height, 20.76 ft); minimum daily, 12 cfs Feb. 10,11.
Period of record: Maximum discharge, 36,200 cfs June 13, 1947 (gage height, 28.23 ft, present datum), from rating curve extended above 14,000 cfs on basis of an overflow profile and extended channel rating; minimum daily, 6 cfs Aug. 18, 1936.
REMARKS.--Records good except those for winter periods, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1240: 1921, 1922-23 (M), 1924, 1942 (M), 1944 (M), 1946. WSP 1440: Drainage area. WSP 1710: 1957.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 1 to Nov. 22, Nov. 29 to Dec. 5, Dec. 8-10, Feb. 22-27, Mar. 26 to May 9, May 19-28; stage-discharge relation affected by ice Nov. 23-28, Dec. 6, 7, Dec. 11 to Feb. 18).

Oct. 1 to Feb. 18		Feb. 19 to Sept. 30			
4.9	32	4.4	21	8.5	1,850
5.3	90	5.0	154	11.5	4,340
5.7	183	5.5	300	16.5	10,100
6.1	299	6.5	700	20.5	16,600

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	51	88	40	19	1,250	237	108	182	202	66	35
2	34	51	93	38	18	596	211	108	170	155	71	34
3	32	52	82	30	18	368	156	108	158	125	98	33
4	33	52	68	25	17	357	149	102	155	119	112	49
5	33	52	59	20	17	630	148	108	146	119	109	60
6	34	51	50	18	16	706	132	157	2,200	120	145	54
7	36	50	48	16	16	349	127	287	2,090	114	92	39
8	58	48	62	16	15	200	121	600	678	109	79	30
9	213	52	67	16	13	209	114	508	547	142	74	28
10	280	84	75	16	12	198	105	414	456	180	71	28
11	166	87	48	16	12	1,090	95	765	368	190	62	28
12	108	71	50	16	13	2,610	95	256	311	212	58	26
13	76	63	70	16	13	2,990	91	191	405	146	57	26
14	62	61	85	16	13	3,810	88	164	1,200	129	54	24
15	56	55	85	16	14	1,240	86	147	608	116	56	25
16	53	45	65	16	20	661	86	128	317	112	56	25
17	51	51	68	16	100	391	96	113	265	106	52	26
18	50	54	70	16	5,000	375	110	800	241	99	49	29
19	47	62	45	16	15,800	371	105	1,720	235	95	49	32
20	46	70	50	16	7,100	243	102	720	211	94	55	34
21	46	93	42	17	1,410	269	136	418	202	93	53	31
22	46	73	38	18	887	312	183	325	175	91	46	31
23	54	35	36	19	547	272	144	286	159	90	42	33
24	61	38	34	21	313	214	120	282	150	89	44	31
25	62	40	36	24	388	205	108	308	145	96	52	39
26	57	50	38	21	425	211	104	249	136	75	48	42
27	87	65	38	19	1,420	197	111	216	125	70	39	40
28	169	74	39	18	1,940	197	123	196	114	70	36	40
29	104	80	39	20	------	390	128	186	106	71	34	35
30	67	78	40	25	------	255	113	177	153	69	35	27
31	55	------	40	20	------	227	------	178	------	68	35	------
TOTAL	2,310	1,788	1,748	617	35,576	21,393	3,724	10,325	12,408	3,566	1,929	1,014
MEAN	74.5	59.6	56.4	19.9	1,271	690	124	333	414	115	62.2	33.8
MAX	280	93	93	40	15,800	3,810	237	1,720	2,200	212	145	60
MIN	32	35	34	16	12	197	86	102	106	68	34	24
CFSM	.08	.07	.06	.02	1.42	.77	.14	.37	.46	.13	.07	.04
IN.	.10	.07	.07	.03	1.48	.89	.15	.43	.52	.15	.08	.04
AC-FT	4,580	3,550	3,470	1,220	70,570	42,430	7,390	20,480	24,610	7,070	3,830	2,010

CAL YR 1970 TOTAL 62,690 MEAN 172 MAX 8,200 MIN 32 CFSM .19 IN 2.61 AC-FT 124,300
WTR YR 1971 TOTAL 96,398 MEAN 264 MAX 15,800 MIN 12 CFSM .30 IN 4.01 AC-FT 191,200

PEAK DISCHARGE (BASE, 4,500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
2-19	1600	20.76	17,000	6-6	1900	13.92	6,810
3-14	0430	13.94	6,830				

06810000 NISHNABOTNA RIVER ABOVE HAMBURG, IOWA

LOCATION.--Lat 40°37'57", long 95°37'32", in SW1/4 SE1/4 sec.11, T.67 N., R.42 W., Fremont County, on left bank 1.6 miles downstream from confluence of East Nishnabotna and West Nishnabotna Rivers, and 2 miles northeast of Hamburg, and at mile 11.0.
DRAINAGE AREA.--2,806 sq mi.
PERIOD OF RECORD.--March 1922 to September 1923, October 1928 to current year. Monthly discharge only for some periods published in WSP 1310.
GAGE.--Water-stage recorder. Datum of gage is 894.17 ft above mean sea level. See WSP 1730 for history of changes prior to Nov. 16, 1950
AVERAGE DISCHARGE.--44 years, 938 cfs (4.54 inches per year, 679,600 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 25,000 cfs Feb. 20; maximum gage height, 26.25 ft Feb. 19 (backwater from ice); minimum daily discharge, 37 cfs Sept. 24 (result of upstream diversions).
Period of record: Maximum discharge, 55,500 cfs June 24, 1947 (gage height, 26.03 ft, present site and datum, from floodmark); minimum daily, 4.5 cfs Aug. 30, 1934.
REMARKS.--Records good except those for winter periods, which are poor. Diversion upstream from East and West Nishnabotna Rivers for wildlife preserve near Riverton. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1240: 1923, 1929-37, 1938-40 (M), 1943 (M). WSP 1440: Drainage area.

Rating tables (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Oct. 1-5, Apr. 15 to May 7, May 16-21, July 4 to Sept. 7; stage-discharge relation affected by ice Nov. 22-28, Dec. 6 to Mar. 12).

Oct. 1 to Mar. 12		Mar. 13 to Sept. 30			
6.3	62	5.6	32	8.0	660
6.8	129	6.0	67	10.0	1,670
7.3	230	6.5	145	13.0	3,770
7.8	376	7.0	265	18.0	8,850

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	232	268	170	120	2,500	783	362	592	648	189	96
2	68	217	265	170	110	2,000	762	349	566	673	189	91
3	66	220	262	160	100	1,600	715	332	548	466	199	88
4	65	232	248	130	98	1,000	633	345	521	411	274	92
5	66	234	221	100	96	1,000	612	343	496	367	301	96
6	131	224	180	90	92	2,000	595	342	479	342	251	92
7	124	228	140	90	88	1,200	580	904	5,520	327	257	89
8	129	211	160	90	85	800	558	1,010	2,280	306	221	80
9	173	252	170	95	80	700	530	935	1,420	420	204	74
10	227	308	180	100	80	750	508	945	1,070	592	189	68
11	244	283	160	100	84	2,000	491	3,130	965	909	178	67
12	254	308	120	100	86	6,000	466	1,420	784	864	167	60
13	258	269	120	100	80	7,730	445	840	698	562	163	58
14	227	240	130	100	85	8,570	433	700	896	387	157	55
15	200	217	150	100	100	5,870	428	606	2,210	335	155	52
16	186	215	180	100	120	2,950	424	548	984	305	157	38
17	181	211	200	100	200	1,890	445	496	687	281	157	39
18	177	216	220	100	4,000	1,490	449	3,520	604	270	155	38
19	176	232	130	100	12,000	1,330	454	3,760	577	253	155	38
20	175	267	130	100	24,000	1,180	441	1,940	550	241	157	38
21	175	263	170	110	15,000	1,000	470	1,490	509	231	174	38
22	178	150	200	120	11,000	1,010	503	1,180	477	229	189	39
23	266	80	200	130	6,000	990	500	1,020	447	223	178	39
24	302	140	200	140	3,000	885	442	1,020	411	219	151	37
25	245	180	190	150	1,000	835	385	930	379	213	141	40
26	226	200	190	160	1,000	830	362	867	369	215	133	44
27	296	220	180	120	2,000	827	384	772	345	219	133	48
28	346	230	170	100	3,000	789	385	656	319	206	126	49
29	357	238	160	120	------	779	373	615	299	204	122	48
30	323	257	160	140	------	1,060	366	584	460	201	114	45
31	261	------	160	130	------	867	------	584	------	195	107	------
TOTAL	6,173	6,774	5,614	3,615	83,704	62,432	14,922	32,545	26,462	11,314	5,443	1,776
MEAN	199	226	181	117	2,989	2,014	497	1,050	882	365	176	59.2
MAX	357	308	268	170	24,000	8,570	783	3,760	5,520	909	301	96
MIN	65	80	120	90	80	700	362	332	299	195	107	37
CFSM	.07	.08	.06	.04	1.07	.72	.18	.37	.31	.13	.06	.02
IN.	.08	.09	.07	.05	1.11	.83	.20	.43	.35	.15	.07	.02
AC-FT	12,240	13,440	11,140	7,170	166,000	123,800	29,600	64,550	52,490	22,440	10,800	3,520

CAL YR 1970 TOTAL 157,930 MEAN 433 MAX 7,600 MIN 58 CFSM .15 IN 2.09 AC-FT 313,300
WTR YR 1971 TOTAL 260,774 MEAN 714 MAX 24,000 MIN 37 CFSM .25 IN 3.46 AC-FT 517,200

PEAK DISCHARGE (BASE, 9,000 CFS).--Feb. 20 (time unknown) about 25,000 cfs; Mar. 14 (1500) 9,700 cfs (18.64 ft).

06811840 TARKIO RIVER AT STANTON, IOWA

LOCATION.--Lat 40°58'52", long 95°06'32", in NW1/4 SW1/4 sec.4, T.71 N., R.37 W., Montgomery County, on right bank 10 ft downstream from bridge on county highway, 0.1 mile downstream from Little Tarkio Creek, and 0.5 mile west of Stanton.
DRAINAGE AREA.--49.3 sq mi.
PERIOD OF RECORD.--October 1957 to current year. Annual maximum, water years 1952-57.
GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,104.67 ft above mean sea level.
AVERAGE DISCHARGE.--14 years, 23.2 cfs (6.39 inches per year, 16,810 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,640 cfs June 7 (gage height, 13.11 ft); minimum daily, 0.04 cfs Sept. 1-3, 17-28.
Period of record: Maximum discharge, 22,500 cfs June 9, 1967 (gage height, 28.56 ft), from rating curve extended above 1,600 cfs on basis of slope-area measurement of peak flow; no flow at times most years.
REMARKS.--Records fair except those for winter periods or indefinite stage-discharge relation, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1919: 1960 (M).

Rating tables (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Mar. 5-8; stage-discharge relation affected by ice Nov. 22-26, Dec. 6-8, Dec. 11 to Mar. 4; stage-discharge relation indefinite Oct. 1-8, Aug. 11 to Sept. 30).

Oct. 1 to Mar. 22				Mar. 23 to Sept. 30			
8.87	0	9.1	8.4	8.82	0	9.1	12
8.90	.51	9.3	26	8.85	.61	9.2	22
8.95	1.5	9.5	53	8.90	1.7	9.4	51
9.00	2.8	9.7	88	8.95	3.3	9.9	157
9.05	5.0			9.0	5.5	10.4	306

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	4.4	7.6	1.8	1.8	35	7.6	4.8	12	5.0	.65	.04
2	.14	4.4	4.4	1.8	1.6	20	6.8	4.0	13	4.5	.90	.04
3	.13	5.0	5.5	1.8	1.5	12	7.0	3.8	15	4.4	2.5	.04
4	.12	5.0	4.4	1.5	1.4	20	6.6	3.7	13	5.1	3.6	10
5	.11	5.0	4.8	1.2	1.3	63	6.4	4.6	13	5.0	2.5	4.1
6	.10	4.4	3.0	.90	1.1	34	6.8	79	11	5.1	1.5	1.0
7	.10	5.0	4.0	.90	.90	22	7.1	173	181	4.8	1.3	.50
8	6.8	5.0	6.0	.95	.80	21	7.1	20	13	4.5	1.8	.20
9	18	13	6.6	1.0	.75	20	6.0	10	11	12	1.4	.10
10	6.2	11	6.9	1.0	.70	29	6.6	100	16	6.5	.75	.08
11	2.5	8.4	4.0	1.0	.80	56	6.7	280	9.7	5.2	.20	.06
12	2.8	8.4	3.8	1.0	.90	39	6.3	12	8.7	4.9	.10	.06
13	1.5	8.4	3.7	1.0	.80	38	3.3	10	17	4.1	.09	.06
14	1.5	7.6	3.9	1.0	.80	31	3.8	7.0	24	4.1	.08	.05
15	1.5	6.2	4.5	1.0	.90	21	4.3	5.5	12	4.7	.08	.05
16	1.2	6.2	7.0	1.0	5.0	17	4.9	4.5	9.4	4.1	.08	.05
17	1.2	6.9	8.0	1.0	100	14	5.0	4.0	8.6	3.7	.07	.04
18	1.7	5.5	8.0	1.0	400	15	4.9	80	9.7	4.0	.06	.04
19	1.5	9.2	3.5	1.0	450	13	4.4	41	8.1	3.5	.05	.04
20	1.2	14	2.8	1.0	70	14	5.7	25	7.2	2.8	.06	.04
21	1.5	11	2.7	1.1	70	13	8.1	20	6.8	2.1	.07	.04
22	3.1	6.0	2.6	1.2	12	11	4.7	19	7.3	1.7	.07	.04
23	5.5	4.0	2.6	1.4	11	8.5	4.0	58	6.8	1.7	.07	.04
24	5.0	3.5	2.6	1.7	10	8.2	3.9	33	6.7	1.7	.07	.04
25	2.8	4.0	2.6	2.5	10	8.9	3.7	21	6.0	1.8	.06	.04
26	5.5	6.0	2.5	2.2	70	9.1	3.4	18	6.2	1.9	.06	.04
27	15	6.2	2.4	2.1	100	9.3	6.0	16	5.1	1.4	.06	.04
28	9.2	6.2	2.2	2.3	60	8.3	4.2	15	4.6	1.2	.05	.04
29	6.9	6.9	1.9	2.6	------	6.1	3.8	15	4.4	1.0	.05	.05
30	5.5	7.6	1.8	2.5	------	6.7	4.2	13	12	1.0	.05	.06
31	5.0	------	1.8	2.0	------	8.7	------	14	------	.99	.05	------
TOTAL	113.46	204.4	128.1	44.45	1,384.05	631.8	163.3	1,113.9	478.3	114.49	18.43	17.02
MEAN	3.66	6.81	4.13	1.43	49.4	20.4	5.44	35.9	15.9	3.69	.59	.57
MAX	18	14	8.0	2.6	450	63	8.1	280	181	12	3.6	10
MIN	.10	3.5	1.8	.90	.70	6.1	3.3	3.7	4.4	.99	.05	.04
CFSM	.07	.14	.08	.03	1.00	.41	.11	.73	.32	.07	.01	.01
IN.	.09	.15	.10	.03	1.04	.48	.12	.84	.36	.09	.01	.01
AC-FT	225	405	254	88	2,750	1,250	324	2,210	949	227	37	34

CAL YR 1970 TOTAL 2,404.40 MEAN 6.59 MAX 23 MIN 0 CFSM .13 IN 1.81 AC-FT 4,770
WTR YR 1971 TOTAL 4,411.70 MEAN 12.1 MAX 450 MIN .04 CFSM .25 IN 3.33 AC-FT 8,750

PEAK DISCHARGE (BASE, 1,500 CFS).--June 7 (0200) 1,640 cfs (13.11 ft).

Note.--Stage-discharge relation indefinite Oct. 1-8, Aug. 11 to Sept. 30.

06813500 MISSOURI RIVER AT RULO, NEBR.

LOCATION.--Lat 40°03'14", long 95°25'12", in NW1/4 NW1/4 sec.17, T.1 N., R.18 E., Richardson County, on downstream end of middle pier of bridge on U.S. Highway 159 at Rulo, 3.2 miles upstream from Nemaha River, and at mile 498.0.
DRAINAGE AREA.--418,900 sq mi, approximately.
PERIOD OF RECORD.--October 1949 to current year in reports of Geological Survey. Gage-height record collected at site 80 ft upstream January 1886 to December 1899 published in reports of Missouri River Commission; September 1929 to September 1950 in files of Kansas City office of Corps of Engineers.
GAGE.--Water-stage recorder. Datum of gage is 837.23 ft above mean sea level. Prior to Sept. 13, 1950, nonrecording gage at site 80 ft upstream at same datum.
AVERAGE DISCHARGE.--22 years, 37,350 cfs (27,060,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 131,000 cfs Mar. 15 (gage height, 16.28 ft); maximum gage height, 18.05 ft June 13; minimum daily discharge, 10,000 cfs Jan. 8-13; minimum gage height, 0.65 ft Jan. 7.
Period of record: Maximum discharge, 358,000 cfs Apr. 22, 1952 (gage height, 25.60 ft); minimum daily, 4,420 cfs Jan. 13, 1957; minimum gage height, 0.65 ft Jan. 7, 1971 (result of freezeup).
Flood in 1881 reached a stage of 22.9 ft, from floodmark (discharge not determined).
REMARKS.--Records good except those for winter period, which are poor. Flow partly regulated by upstream mainstem reservoirs.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42,800	49,100	46,000	19,500	20,500	59,500	58,500	45,200	65,500	66,000	51,800	49,500
2	42,200	48,700	46,700	20,500	20,500	53,600	60,000	44,200	65,500	64,500	50,800	49,500
3	42,500	50,000	46,700	21,700	21,000	47,100	58,500	44,200	64,000	65,000	51,300	48,300
4	42,800	50,400	46,300	20,900	23,000	44,200	55,800	44,600	64,500	62,000	52,200	48,300
5	42,200	50,000	45,200	19,000	23,000	43,500	53,100	44,600	64,000	60,500	53,100	49,500
6	41,300	48,700	41,300	17,000	22,500	44,900	52,600	44,200	66,500	59,500	51,800	50,800
7	41,300	47,900	38,200	12,000	22,000	44,200	50,800	49,500	84,000	60,000	51,300	51,300
8	43,800	47,900	35,600	10,000	21,000	42,200	48,700	53,600	92,600	59,500	50,800	51,300
9	52,600	48,700	32,900	10,000	20,500	40,700	49,100	52,200	93,900	61,000	50,400	50,400
10	62,000	52,200	32,000	10,000	20,000	39,900	48,700	50,800	93,200	63,500	50,400	50,800
11	55,800	52,200	30,700	10,000	20,000	42,500	46,300	75,200	91,300	66,000	50,000	51,300
12	52,600	52,600	29,100	10,000	21,000	62,000	46,300	81,800	95,200	71,500	50,400	50,400
13	53,100	53,100	26,500	10,000	22,000	95,200	46,000	74,000	99,100	70,000	50,400	49,100
14	52,200	52,600	25,100	11,000	23,000	118,000	45,200	71,000	97,200	64,000	50,400	49,100
15	52,600	51,800	25,800	13,000	24,000	125,000	44,900	67,500	95,800	61,000	50,000	49,500
16	52,600	51,300	26,100	16,000	24,500	76,800	44,600	64,500	95,200	57,600	50,800	50,400
17	50,400	50,400	25,700	15,500	27,000	53,600	44,200	64,500	85,600	55,400	50,400	50,400
18	48,700	50,000	25,500	15,500	35,000	50,000	44,200	68,000	79,000	57,600	50,000	50,000
19	47,500	50,000	26,500	16,000	50,000	51,300	44,600	82,300	76,800	55,800	50,000	50,400
20	46,300	50,000	26,700	17,000	90,000	51,800	44,900	75,200	67,000	54,900	50,400	51,300
21	47,100	50,400	25,900	18,400	118,000	51,300	44,900	68,000	65,500	54,000	51,800	50,000
22	47,100	49,500	24,300	20,500	119,000	54,000	45,200	66,000	67,500	51,300	50,800	50,400
23	47,500	48,700	22,900	21,100	116,000	56,700	44,200	67,000	67,000	50,400	49,500	50,800
24	49,100	47,500	23,100	21,100	92,600	57,200	44,900	66,500	65,500	50,800	49,500	52,600
25	48,300	43,500	22,900	21,700	70,500	55,800	46,000	68,000	64,000	50,800	49,500	52,600
26	47,500	44,600	21,100	22,500	61,000	55,800	45,600	69,500	63,000	51,800	50,000	51,800
27	50,800	44,900	19,500	22,100	62,500	54,000	46,300	66,500	61,000	52,200	50,000	52,200
28	53,600	44,200	19,500	20,900	63,000	54,000	46,700	67,500	60,000	51,800	49,500	51,800
29	51,300	43,500	19,500	21,700	------	58,500	47,900	67,500	58,500	52,600	50,000	50,800
30	49,500	43,500	19,500	23,100	------	62,500	47,100	66,500	60,500	53,100	49,500	52,600
31	49,500	------	19,500	22,700	------	59,500	------	66,000	------	53,600	49,100	------
TOTAL	1,506.6M	1,467.9M	916,300	530,400	1,253.1M	1,805.3M	1,445.8M	1,936.1M	2,268.4M	1,807.7M	1,565.9M	1,517.2M
MEAN	48,600	48,930	29,560	17,110	44,750	58,240	48,190	62,450	75,610	58,310	50,510	50,570
MAX	62,000	53,100	46,700	23,100	119,000	125,000	60,000	82,300	99,100	71,500	53,100	52,600
MIN	41,300	43,500	19,500	10,000	20,000	39,900	44,200	44,200	58,500	50,400	49,100	48,300
AC-FT	2,988M	2,912M	1,817M	1,052M	2,486M	3,581M	2,868M	3,840M	4,499M	3,586M	3,106M	3,009M

CAL YR 1970 TOTAL 14,590,700 MEAN 39,970 MAX 62,000 MIN 11,000 AC-FT 28,940,000
WTR YR 1971 TOTAL 18,020,700 MEAN 49,370 MAX 125,000 MIN 10,000 AC-FT 35,740,000

M Expressed in thousands.

06817000 NODAWAY RIVER AT CLARINDA, IOWA

LOCATION.--Lat 40°44'19", long 95°00'47", in SW1/4 NE1/4 sec.32, T.69 N., R.36 W., Page County, on downstream side of center bridge pier on State Highway 2, 0.5 mile downstream from North Branch, 1.2 miles east of city square of Clarinda, and 7.5 miles upstream from East Nodaway River.
DRAINAGE AREA.--762 sq mi.
PERIOD OF RECORD.--May 1918 to July 1925, May 1936 to current year. Monthly discharge only for some periods, published in WSP 1310.
GAGE.--Water-stage recorder. Datum of gage is 960.36 ft above mean sea level. Prior to July 5, 1925, and May 28, 1936, to Mar. 26, 1957, nonrecording gage at same site and datum.
AVERAGE DISCHARGE.--41 years (1918-24, 1936-71), 290 cfs (5.17 inches per year, 210,100 acre-ft per year); median of yearly mean discharges, 240 cfs (4.3 inches per year, 174,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 10,800 cfs Feb. 19 (gage height, 12.50 ft, observed); minimum daily, 12 cfs Oct. 3, 4.
Period of record: Maximum discharge, 31,100 cfs June 13, 1947 (gage height, 25.3 ft, from floodmark), from rating curve extended above 15,000 cfs on basis of an overflow profile and extended channel rating; minimum daily, 1 cfs Sept. 5, 9, 12, 14, 1918, Dec. 9, 27-31, 1923.
Flood in August 1903 reached a stage of 25.4 ft, from floodmarks (discharge not determined).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analysis for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1240: 1918-20 (M), 1921, 1922-25 (M), 1936-38, 1942, 1943-45 (M), 1948. WSP 1440: Drainage area. WSP 1710: 1958, 1959 (P).

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 1-9, Feb. 20 to Mar. 7, Mar. 11-16, May 7-12, 18-20, 23-25, June 1-7, 9, 11-14, June 16 to July 14; stage-discharge relation indefinite Sept. 15-30; stage-discharge relation affected by ice Nov. 15, 16, 22-29, Dec. 6-9, Dec. 11 to Feb. 18).

1.18	12	4.0	740
1.3	22	5.0	1,260
1.6	62	7.0	2,900
2.0	135	10.0	6,540
3.0	381	12.0	9,900

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	34	59	29	26	1,250	164	82	201	119	25	18
2	14	34	56	30	25	660	153	76	181	93	26	17
3	12	36	47	30	25	425	125	72	166	67	34	16
4	12	36	39	28	25	419	115	70	155	62	69	32
5	13	32	31	25	25	556	121	72	147	59	76	117
6	13	34	20	23	24	620	104	86	139	58	67	98
7	13	32	22	20	22	404	102	2,980	1,040	54	50	50
8	94	30	32	20	20	265	102	2,480	312	50	41	35
9	302	117	34	21	20	257	93	935	469	67	32	26
10	218	145	36	21	20	240	86	608	260	106	27	21
11	139	104	35	21	22	964	84	1,520	186	106	23	20
12	100	70	33	20	23	1,690	79	628	159	81	21	18
13	65	58	36	20	20	1,450	76	378	143	58	21	17
14	48	48	38	20	20	2,430	76	317	141	47	21	16
15	39	45	39	20	25	937	72	230	255	46	18	15
16	25	38	45	20	30	425	74	265	151	43	17	15
17	29	43	55	20	50	281	84	320	115	39	17	16
18	26	41	55	20	2,500	276	86	255	115	37	16	16
19	24	44	45	20	8,660	283	88	1,180	175	34	17	16
20	23	94	35	20	4,860	213	89	702	117	32	29	16
21	22	93	38	21	1,190	204	131	612	94	32	31	16
22	23	70	40	22	510	250	162	283	81	32	29	16
23	44	45	38	23	396	216	113	1,000	79	31	21	16
24	60	32	35	24	479	166	89	2,450	74	31	22	16
25	52	34	32	30	503	162	79	760	70	31	20	24
26	50	40	31	29	578	166	74	401	69	31	26	25
27	94	42	30	27	2,150	162	98	315	77	30	27	20
28	94	45	29	27	1,570	159	111	263	54	29	21	18
29	81	60	28	28	------	233	104	228	48	29	19	17
30	52	65	28	30	------	184	84	213	102	27	19	16
31	40	------	28	30	------	168	------	225	------	26	17	------
TOTAL	1,836	1,641	1,149	739	23,818	16,115	3,018	20,006	5,375	1,587	899	779
MEAN	59.2	54.7	37.1	23.8	851	520	101	645	179	51.2	29.0	26.0
MAX	302	145	59	30	8,660	2,430	164	2,980	1,040	119	76	117
MIN	12	30	20	20	20	159	72	70	48	26	16	15
CFSM	.08	.07	.05	.03	1.12	.68	.13	.85	.23	.07	.04	.03
IN.	.09	.08	.06	.04	1.16	.79	.15	.98	.26	.08	.04	.04
AC-FT	3,640	3,250	2,280	1,470	47,240	31,960	5,990	39,680	10,660	3,150	1,780	1,550

CAL YR 1970 TOTAL 33,713 MEAN 92.4 MAX 4,550 MIN 11 CFSM .12 IN 1.65 AC-FT 66,870
WTR YR 1971 TOTAL 76,962 MEAN 211 MAX 8,660 MIN 12 CFSM .28 IN 3.76 AC-FT 152,700

PEAK DISCHARGE (BASE, 5,000 CFS).--Feb. 19 (0730) 10,800 cfs (12.50 ft); May 7 (1800) 7,720 cfs (10.65 ft).

06818750 PLATTE RIVER NEAR DIAGONAL, IOWA

LOCATION.--Lat 40°46'02", long 94°24'46", in NE1/4 SW1/4 sec.22, T.69 N., R.31 W., Ringgold County, on left bank at downstream side of bridge on county highway, 2.2 miles upstream from Turkey Creek, 4.6 miles southwest of Diagonal, and 4.9 miles downstream from Gard Creek.
DRAINAGE AREA.--217 sq mi.
PERIOD OF RECORD.--April 1968 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,095.27 ft above mean sea level.
EXTREMES.--Current year: Maximum discharge, 6,070 cfs May 24 (gage height, 22.24 ft); minimum daily, 1.5 cfs Sept. 15-17.
Period of record: Maximum discharge, 6,070 cfs May 24, 1971 (gage height, 22.24 ft); maximum gage height, 22.76 ft July 18, 1969; minimum daily discharge, 0.21 cfs Jan. 14, 15, 1969.
Flood of June 1967 reached a stage of 23.16 ft, from floodmark by local resident (discharge not determined).
REMARKS.--Records good except those for winter periods, which are fair. Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Mar. 16 to Apr. 20, June 16 to Sept. 30; stage-discharge relation affected by ice Nov. 22-28, Dec. 4-7, 14, 15, Dec. 20 to Mar. 9).

Oct. 1 to Feb. 17

3.9	4.0	6.0	190
4.0	7.8	8.0	495
4.2	19	10.0	910
4.6	50	14.0	2,050
5.0	84		

Feb. 18 to Sept. 30

3.7	.29	4.6	50	10.0	910
3.8	1.6	5.0	84	13.0	1,740
3.9	4.0	6.0	190	17.0	3,120
4.0	7.8	8.0	495	20.0	4,600
4.2	19				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	37	90	41	10	230	48	20	57	86	3.2	3.0
2	7.4	34	75	42	9.8	110	59	18	46	34	3.2	2.9
3	5.9	38	64	40	9.6	85	50	17	43	24	6.2	3.2
4	5.0	48	60	35	9.4	100	43	14	36	20	25	7.1
5	4.2	44	50	30	9.0	120	38	21	29	19	29	6.2
6	4.6	37	45	25	8.6	100	33	85	32	17	17	4.0
7	4.8	33	40	21	8.3	75	32	959	88	14	6.9	3.2
8	20	44	43	19	8.0	63	25	1,780	88	12	5.0	2.1
9	369	1,800	45	20	8.4	65	22	368	116	17	3.9	2.4
10	245	1,170	47	21	8.7	73	23	193	82	59	3.4	2.1
11	86	231	82	19	9.0	371	20	146	74	31	3.3	2.0
12	55	228	92	18	9.2	388	19	107	36	18	3.4	1.8
13	43	167	65	17	9.4	316	19	78	28	14	3.4	1.6
14	35	131	60	16	9.7	393	20	57	116	12	3.1	1.6
15	29	109	66	16	10	241	18	45	727	11	2.9	1.5
16	23	86	75	15	12	132	18	36	135	9.4	2.9	1.5
17	20	83	113	15	18	103	22	30	81	8.2	2.9	1.5
18	18	79	125	15	1,600	101	24	37	71	7.1	2.9	2.1
19	17	104	89	14	3,500	99	25	776	134	6.1	3.0	2.3
20	16	434	60	14	2,300	87	30	256	63	5.7	4.0	2.1
21	16	180	55	15	500	85	89	124	48	5.7	6.8	2.0
22	16	110	52	15	150	74	65	95	36	4.7	4.6	2.1
23	33	80	50	16	110	69	37	81	32	3.9	3.8	2.0
24	128	70	45	16	100	61	28	4,610	27	3.1	3.4	1.8
25	80	80	40	17	90	58	21	1,580	23	3.0	3.4	2.3
26	50	90	39	15	500	57	20	265	20	3.9	3.4	2.7
27	99	90	38	14	1,100	59	59	154	18	3.6	3.4	2.5
28	105	80	37	13	400	62	77	108	15	2.9	3.3	2.4
29	62	68	38	12	------	64	36	84	13	3.2	3.2	2.1
30	49	75	39	11	------	55	24	67	83	3.2	3.2	2.0
31	43	------	40	10	------	48	------	60	------	3.2	3.3	------
TOTAL	1,698.5	5,860	1,859	607	10,517.1	3,944	1,044	12,271	2,397	464.9	176.4	76.1
MEAN	54.8	195	60.0	19.6	376	127	34.8	396	79.9	15.0	5.69	2.54
MAX	369	1,800	125	42	3,500	393	89	4,610	727	86	29	7.1
MIN	4.2	33	37	10	8.0	48	18	14	13	2.9	2.9	1.5
CFSM	.25	.90	.28	.09	1.73	.59	.16	1.82	.37	.07	.03	.01
IN.	.29	1.00	.32	.10	1.80	.68	.18	2.10	.41	.08	.03	.01
AC-FT	3,370	11,620	3,690	1,200	20,860	7,820	2,070	24,340	4,750	922	350	151

CAL YR 1970 TOTAL 19,250.7 MEAN 52.7 MAX 1,800 MIN 1.7 CFSM .24 IN 3.30 AC-FT 38,180
WTR YR 1971 TOTAL 40,915.0 MEAN 112 MAX 4,610 MIN 1.5 CFSM .52 IN 7.01 AC-FT 81,150

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G. H.		DISCHARGE	DATE	TIME	G. H.	DISCHARGE
11-9	2015	16.23		2,850	5-8	0715	15.61	2,570
2-19	--	--	*	3,900	5-24	1830	22.24	6,070
2-26	--	--	*	1,400				

* About

06819190 EAST FORK ONE HUNDRED AND TWO RIVER NEAR BEDFORD, IOWA

LOCATION.--Lat 40°38'01", long 94°44'41", in NE1/4 NE1/4 sec.9, T.67 N., R.34 W., Taylor County, on left bank at downstream side of bridge of county highway J55, 0.4 mile upstream from Daugherty Creek, and 2.8 miles southwest of junction of U.S. Highways 2 and 148 in Bedford.
DRAINAGE AREA.--92.1 sq mi.
PERIOD OF RECORD.--September 1959 to current year.
GAGE.--Water-stage recorder. Datum of gage is 1,057.51 ft above mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1968, at datum 5.00 ft higher.
AVERAGE DISCHARGE.--12 years, 43.2 cfs (6.37 inches per year, 31,300 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 2,500 cfs Feb. 18 (gage height, 11.69 ft, backwater from ice); minimum daily, 0.03 cfs Oct. 2.
Period of record: Maximum discharge, 7,160 cfs Apr. 26, 1969 (gage height, 15.95 ft); maximum gage height, 20.95 ft Jan. 12, 1960, present datum; no flow for many days in 1966-68, 1970.
REMARKS.--Records fair except those for winter period, which are poor. Slight regulation at low flow by low dam used for water supply in Bedford. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating tables (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Sept. 17-30; stage-discharge relation affected by ice Nov. 22-28, Dec. 4 to Feb. 19, Feb. 21 to Mar. 4, Mar. 8 to 12).

Oct. 1 to Feb. 17				Feb. 18 to Sept. 30			
3.96	.03	4.4	10	3.52	.18	4.3	26
3.98	.12	4.6	23	3.6	.72	4.7	78
4.0	.3	4.8	42	3.7	1.7	5.2	174
4.1	1.4	5.2	101	3.8	3.1	5.5	248
4.2	3.0	5.8	238	3.9	5.5	6.5	570
4.3	6.0	6.5	478	4.1	13		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	1.8	16	9.4	3.3	60	11	5.5	9.5	7.8	.50	.43
2	.03	1.6	11	10	3.0	25	8.1	5.0	9.4	3.3	.48	.54
3	.07	1.1	8.8	5.5	3.0	30	11	4.0	5.4	2.1	1.5	.52
4	.12	.70	6.2	5.0	3.0	55	6.3	3.3	4.2	2.0	1.8	2.9
5	.20	.82	5.4	4.0	2.8	80	5.5	3.7	3.5	1.6	.99	1.2
6	1.2	2.1	5.0	3.0	2.6	55	5.2	16	3.1	1.5	.78	.41
7	.40	2.4	4.5	3.0	2.4	37	5.2	98	3.5	1.3	2.1	.30
8	3.7	6.7	5.0	3.0	2.0	35	5.1	149	5.3	1.3	1.2	.24
9	20	396	5.4	3.0	2.0	30	4.9	21	11	5.2	.82	.30
10	30	120	5.8	3.0	2.0	50	3.9	15	9.1	4.9	.42	.24
11	9.7	89	5.5	3.0	2.2	350	4.0	14	6.1	8.6	.36	.18
12	3.5	54	5.5	3.0	2.4	200	4.5	9.6	3.0	2.2	.24	.24
13	1.6	12	5.8	3.0	2.4	191	4.1	7.1	2.7	1.6	.30	.18
14	.82	5.6	6.5	3.0	2.4	132	3.9	5.3	7.6	1.2	.58	.24
15	.50	5.6	7.0	3.0	10	80	3.9	4.5	26	.98	.58	.18
16	.40	4.7	7.5	3.0	50	68	4.3	3.6	6.9	.72	.36	.24
17	.40	3.2	8.0	3.0	100	46	5.7	3.2	2.9	.58	.47	.18
18	.40	7.9	8.5	3.0	1,000	30	5.8	35	2.2	1.1	.39	.42
19	.40	22	8.8	3.0	2,000	21	5.9	182	1.8	.64	.93	.46
20	.40	23	9.0	3.0	526	18	7.8	30	1.3	.49	5.0	.36
21	.41	22	9.0	3.1	90	18	30	15	1.6	.45	2.6	.36
22	.66	10	9.1	3.3	85	18	15	12	.98	.51	.62	.37
23	2.5	5.0	9.1	3.5	80	17	6.0	34	.91	.51	.56	.34
24	12	4.5	9.1	3.7	70	26	4.6	287	.84	.36	.44	.36
25	7.7	6.0	9.1	4.5	70	14	3.7	55	1.4	.44	.45	.71
26	2.7	10	9.1	4.3	300	16	3.6	19	1.4	.42	.36	.59
27	2.3	15	8.6	3.9	300	16	27	13	1.3	.42	.41	.42
28	1.8	14	8.0	3.5	100	17	16	9.9	.97	.42	.38	.44
29	2.0	13	8.0	3.5	------	14	7.1	8.0	.88	.48	.42	.36
30	2.0	14	8.4	3.7	------	11	5.6	6.9	12	.50	.35	.36
31	1.8	------	9.0	3.5	------	11	------	12	------	.50	.39	------
TOTAL	109.91	873.72	241.7	119.4	4,816.5	1,771	234.7	1,086.6	146.78	54.12	26.78	14.07
MEAN	3.55	29.1	7.80	3.85	172	57.1	7.82	35.1	4.89	1.75	.86	.47
MAX	30	396	16	10	2,000	350	30	287	26	8.6	5.0	2.9
MIN	.03	.70	4.5	3.0	2.0	11	3.6	3.2	.84	.36	.24	.18
CFSM	.04	.32	.08	.04	1.87	.62	.08	.38	.05	.02	.009	.005
IN.	.04	.35	.10	.05	1.95	.72	.09	.44	.06	.02	.01	.005
AC-FT	218	1,730	479	237	9,550	3,510	466	2,160	291	107	53	28

CAL YR 1970 TOTAL 4,769.26 MEAN 13.1 MAX 422 MIN 0 CFSM .14 IN 1.93 AC-FT 9,460
WTR YR 1971 TOTAL 9,495.28 MEAN 26.0 MAX 2,000 MIN .03 CFSM .28 IN 3.84 AC-FT 18,830

PEAK DISCHARGE (BASE, 2,000 CFS).--Feb. 18 (time unknown) about 2,500 cfs.

06897950 ELK CREEK NEAR DECATUR CITY, IOWA
(Hydrologic bench-mark station)

LOCATION.--Lat 40°43'18", long 93°56'19", near the southeast corner sec.34, T.69 N., R.27 W., Decatur County, on right bank 300 ft upstream from bridge on county highway, 700 ft downstream from West Elk Creek, 5.2 miles upstream from mouth, and 5.7 miles southwest of Decatur City.
DRAINAGE AREA.--52.5 sq mi.
PERIOD OF RECORD.--October 1967 to current year.
GAGE.--Water-stage recorder. Datum of gage is 934.70 ft above mean sea level.
EXTREMES.--Current year: Maximum discharge, 784 cfs May 7 (gage height, 6.56 ft); no flow July 20 to Aug. 19, Aug. 21 to Sept. 3, Sept. 9-30.
Period of record: Maximum discharge, 7,710 cfs July 9, 1969 (gage height, 15.23 ft) from rating curve extended above 5,300 cfs on basis of step-backwater computation; no flow at times.
Flood of June 14, 1967, reached a stage of 18.35 ft, (discharge, 15,000 cfs, estimated from rating curve extended above 5,300 cfs on basis of step-backwater computation). Flood of Aug. 6, 1959 reached a stage between 20.5 and 22.5 ft 300 ft downstream, from information by assistant county engineer (discharge not determined).
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 31 to Nov. 19, Nov. 22 to Dec. 9, Dec. 12 to Jan. 21; stage-discharge relation affected by ice Dec. 5-7, 12-15, Dec. 19 to Mar. 4).

2.5	0	3.0	4.0	4.0	62
2.6	.08	3.2	8.5	4.5	138
2.7	.55	3.4	16	5.0	250
2.8	1.4	3.7	34	5.5	405

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	12	18	7.3	2.3	35	8.4	5.3	2.7	1.8	0	0
2	4.3	12	12	7.4	2.2	25	11	5.1	2.3	.63	0	0
3	3.4	12	12	6.6	2.3	20	9.0	4.4	2.2	.42	0	0
4	3.2	10	9.4	5.8	2.5	19	7.0	4.3	2.1	.47	0	.51
5	3.2	9.4	8.0	4.7	2.6	20	6.2	5.0	2.6	.47	0	2.8
6	4.9	8.9	6.2	3.7	2.4	16	5.6	115	2.2	.36	0	.37
7	7.5	8.2	7.4	3.0	2.2	14	4.7	200	2.4	.33	0	.03
8	49	9.3	11	4.0	2.0	12	4.7	81	1.8	.25	0	.02
9	239	105	9.7	5.0	2.1	13	4.2	20	1.5	8.5	0	0
10	37	37	110	5.6	2.3	14	3.3	18	5.3	1.6	0	0
11	21	21	94	5.6	2.7	100	4.0	13	2.5	1.0	0	0
12	17	18	62	5.5	3.3	80	4.5	9.6	1.6	.51	0	0
13	14	18	35	5.4	4.0	60	4.0	8.0	1.3	.27	0	0
14	11	15	25	5.3	5.0	70	3.6	7.1	1.9	.31	0	0
15	9.4	13	45	5.2	7.0	45	4.0	5.7	2.4	.23	0	0
16	8.2	13	114	5.1	20	26	3.8	5.1	1.8	.16	0	0
17	7.5	12	137	5.0	110	20	4.1	4.8	1.2	.12	0	0
18	7.0	11	87	4.8	400	22	4.7	8.3	.95	.13	0	0
19	6.5	23	40	4.8	350	20	4.4	11	.85	.01	0	0
20	6.0	56	27	4.7	140	16	6.7	5.9	.74	0	.02	0
21	5.5	20	20	5.6	70	15	12	4.9	.66	0	0	0
22	7.9	18	14	6.0	50	14	5.3	5.8	.55	0	0	0
23	36	12	10	6.4	45	12	4.3	6.5	.47	0	0	0
24	22	8.0	8.0	6.6	42	10	4.0	8.5	.39	0	0	0
25	12	9.7	7.4	6.8	70	11	3.6	5.8	.35	0	0	0
26	91	15	7.0	4.5	300	10	3.5	4.4	.36	0	0	0
27	81	17	6.8	3.5	110	11	30	3.9	.19	0	0	0
28	24	17	6.6	3.7	60	12	9.6	3.5	.13	0	0	0
29	18	24	6.5	4.0	------	10	6.1	3.3	.08	0	0	0
30	15	23	6.8	3.0	------	8.6	5.2	2.9	2.7	0	0	0
31	13	------	7.1	2.5	------	8.1	------	3.0	------	0	0	------
TOTAL	789.3	587.5	969.9	157.1	1,811.9	768.7	191.5	589.1	46.22	17.57	.02	3.73
MEAN	25.5	19.6	31.3	5.07	64.7	24.8	6.38	19.0	1.54	.57	.0006	.12
MAX	239	105	137	7.4	400	100	30	200	5.3	8.5	.02	2.8
MIN	3.2	8.0	6.2	2.5	2.0	8.1	3.3	2.9	.08	0	0	0
CFSM	.49	.37	.60	.10	1.23	.47	.12	.36	.03	.01	0	.002
IN.	.56	.42	.69	.11	1.28	.54	.14	.42	.03	.01	0	.002
AC-FT	1,570	1,170	1,920	312	3,590	1,520	380	1,170	92	35	.04	7.4

CAL YR 1970 TOTAL 6,765.82 MEAN 18.5 MAX 955 MIN 0 CFSM .35 IN 4.79 AC-FT 13,420
WTR YR 1971 TOTAL 5,932.54 MEAN 16.3 MAX 400 MIN 0 CFSM .31 IN 4.20 AC-FT 11,770

PEAK DISCHARGE (BASE, 500 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	0500	5.94	559	12-10	2000	6.49	756
10-26	2130	6.49	756	5-6	0200	6.10	636
11-9	1100	5.78	503	5-7	1945	6.56	784

06898000 THOMPSON RIVER AT DAVIS CITY, IOWA

LOCATION.--Lat 40°38'25", long 93°48'29", in SE1/4 SE1/4 sec.35, T.68 N., R.26 W., Decatur County, on right bank 15 ft downstream from bridge on U.S. Highway 69 at Davis City, 2.6 miles upstream from Dickersons Branch, and 5.2 miles upstream from Iowa-Missouri State line.
DRAINAGE AREA.--701 sq mi.
PERIOD OF RECORD.--May 1918 to July 1925, July 1941 to current year. Monthly discharge only for some periods, published in WSP 1310. Prior to October 1918, published as "Grand River".
GAGE.--Water-stage recorder. Datum of gage is 874.04 ft above mean sea level. May 14, 1918, to July 2, 1925, July 14, 1941, to Feb. 24, 1942, nonrecording gage, and Feb. 25, 1942, to Feb. 8, 1967, water-stage recorder at same site at datum 2.00 ft higher.
AVERAGE DISCHARGE.--36 years (1918-24, 1941-71), 343 cfs (6.64 inches per year, 248,500 acre-ft per year); median of yearly mean discharges, 304 cfs (5.9 inches per year, 220,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, about 5,200 cfs Feb. 20 (gage height, 8.40 ft, backwater from ice); minimum daily, 4.4 cfs Sept. 30.
Period of record: Maximum discharge, 21,300 cfs June 14, 1947 (gage height, 20.14 ft), from rating curve extended above 15,000 cfs on basis of velocity-area study; minimum daily, 0.1 cfs June 25, 1956.
Flood of Aug. 8, 1885, reached a stage of 22.8 ft, from floodmark (discharge, 30,000 cfs, from rating curve extended above 15,000 cfs on basis of velocity-area study).
REMARKS.--Records good except those for winter period, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.
REVISIONS (WATER YEARS).--WSP 1240: 1918, 1920-21 (M), 1922-24, 1925 (M), 1946-47 (M). WSP 1440: Drainage area. WSP 1710: 1957.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	163	242	52	82	1,620	175	132	221	57	11	6.4
2	72	144	239	54	84	1,100	159	107	201	74	10	6.1
3	60	140	217	52	84	714	145	96	183	85	12	6.0
4	51	139	179	45	85	567	132	91	165	64	11	13
5	44	137	157	60	86	564	119	88	149	46	13	46
6	42	131	131	56	80	584	114	708	139	38	15	82
7	42	122	106	50	76	487	110	470	129	36	21	58
8	118	117	104	50	72	423	108	2,620	127	35	20	44
9	1,670	521	146	54	70	381	104	2,650	166	50	18	20
10	1,710	2,340	235	54	70	367	96	1,670	190	51	15	14
11	581	2,240	734	54	72	877	90	730	140	51	13	12
12	317	725	460	52	72	1,270	89	534	130	67	11	11
13	231	476	250	52	72	1,520	87	411	120	59	9.9	10
14	176	395	225	52	72	1,680	84	331	112	47	9.4	8.8
15	140	330	252	50	72	1,710	79	278	106	38	8.6	7.8
16	114	287	397	52	72	1,130	80	238	126	31	8.2	6.7
17	98	262	601	54	200	610	81	207	110	28	7.8	6.4
18	91	251	651	56	2,000	441	89	222	94	28	7.5	7.7
19	87	246	487	59	3,200	416	95	261	82	27	7.0	8.5
20	84	522	200	62	5,000	387	92	701	73	21	7.5	7.9
21	79	857	230	58	3,800	340	132	702	74	18	9.8	7.4
22	97	512	220	58	3,000	316	199	358	69	17	63	6.8
23	290	280	210	58	1,600	307	163	275	60	16	111	6.1
24	626	120	170	62	985	251	119	304	54	16	38	5.5
25	542	150	150	67	723	218	93	2,480	50	18	16	6.3
26	437	245	130	72	1,740	212	77	1,970	48	15	12	6.0
27	932	227	100	60	2,750	214	209	638	44	13	9.3	5.5
28	344	220	84	63	2,220	214	365	419	41	13	8.2	4.9
29	315	221	56	76	------	209	274	330	38	12	7.6	4.9
30	251	231	50	80	------	205	182	276	46	12	7.2	4.4
31	195	------	50	80	------	194	------	246	------	11	6.7	------
TOTAL	9,923	12,751	7,463	1,804	28,439	19,528	3,941	20,543	3,287	1,094	524.7	440.1
MEAN	320	425	241	58.2	1,016	630	131	663	110	35.3	16.9	14.7
MAX	1,710	2,340	734	80	5,000	1,710	365	2,650	221	85	111	82
MIN	42	117	50	45	70	194	77	88	38	11	6.7	4.4
CFSM	.46	.61	.34	.08	1.45	.90	.19	.95	.16	.05	.02	.02
IN.	.53	.68	.40	.10	1.51	1.04	.21	1.09	.17	.06	.03	.02
AC-FT	19,680	25,290	14,800	3,580	56,410	38,730	7,820	40,750	6,520	2,170	1,040	873

CAL YR 1970 TOTAL 93,837.0 MEAN 257 MAX 3,320 MIN 11 CFSM .37 IN 4.98 AC-FT 186,100
WTR YR 1971 TOTAL 109,737.8 MEAN 301 MAX 5,000 MIN 4.4 CFSM .43 IN 5.82 AC-FT 217,700

PEAK DISCHARGE (BASE, 4,500 CFS).--Feb. 20 (time unknown) about 5,200 cfs.

06898400 WELDON RIVER NEAR LEON, IOWA

LOCATION.--Lat 40°41'45", long 93°38'07", in NE1/4 NE1/4 sec.17, T.68 N., R.24 W., Decatur County, on left bank 10 ft downstream from bridge on county highway A, 200 ft upstream from unnamed creek, 1.3 miles downstream from Brush Creek, and 6.5 miles southeast of Post Office at Leon.
DRAINAGE AREA.--104 sq mi.
PERIOD OF RECORD.--October 1958 to current year.
GAGE.--Water-stage recorder. Datum of gage is 906.26 ft above mean sea level.
AVERAGE DISCHARGE.--13 years, 68.3 cfs (8.92 inches per year, 49,480 acre-ft per year); median of yearly mean discharges, 47 cfs (6.1 inches per year, 34,100 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 4,230 cfs Oct. 9 (gage height, 14.90 ft); minimum daily, 0.02 cfs Sept. 14-17.
Period of record: Maximum discharge, 48,600 cfs Aug. 6, 1959 (gage height, 25.27 ft), from rating curve extended above 5,600 cfs on basis of contracted-opening and flow-over-embankment measurement of peak flow; no flow many days in 1968.
Stage and discharge of the flood of Aug. 6, 1959, are the greatest since at least 1919.
REMARKS.--Records good except those for winter periods, which are poor. Records of periodic chemical analyses for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second). (Shifting-control method used Oct. 1-7, Feb. 27 to Apr. 26, July 25 to Sept. 3; stage-discharge relation affected by ice Nov. 23, 24, Dec. 13-15, Dec. 20 to Mar. 1).

4.5	0.02	4.9	5.6	7.0	290
4.6	.19	5.0	10	8.0	540
4.7	.83	5.4	41	10.0	1,250
4.8	2.5	6.0	108	12.0	2,340

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	23	16	18	4.1	90	15	14	2.3	1.0	.46	.25
2	6.8	22	13	18	4.1	60	14	13	1.9	.69	.41	.23
3	5.4	22	11	17	4.0	44	11	11	1.6	.56	.87	.23
4	5.1	20	9.1	15	3.9	41	9.9	9.2	.95	1.4	.49	22
5	4.3	19	8.1	13	3.8	44	9.4	9.8	1.1	1.4	.43	55
6	4.8	18	7.3	11	3.7	36	9.1	124	.75	1.0	.38	5.2
7	4.6	16	6.9	9.0	3.6	31	8.8	89	1.3	1.2	.34	1.3
8	518	18	9.6	7.0	3.6	28	8.5	109	.53	.96	.34	.45
9	2,070	41	11	6.4	3.5	31	7.4	44	.40	11	.28	.34
10	188	43	47	6.0	3.7	34	5.7	28	24	2.1	.21	.14
11	102	28	249	5.8	4.2	476	6.3	24	6.0	.92	.17	.06
12	71	23	56	5.5	5.0	252	6.6	18	1.8	.52	.17	.04
13	52	20	35	5.3	5.5	144	6.2	13	1.1	.43	.16	.04
14	42	18	30	5.1	6.0	164	8.3	9.2	145	.42	.13	.02
15	34	15	35	5.0	7.0	102	6.9	6.4	37	.36	.13	.02
16	27	15	54	4.9	11	60	5.8	5.8	10	.26	.14	.02
17	22	16	105	4.8	300	43	8.7	5.1	4.7	.22	.13	.02
18	18	15	135	4.7	1,000	47	7.9	303	3.2	.21	.15	.59
19	16	16	61	4.6	900	45	7.4	264	2.3	.13	.19	.55
20	15	34	30	4.5	300	32	63	41	1.5	.14	1.0	.20
21	14	27	25	4.6	200	33	91	16	1.2	.16	4.7	.14
22	60	19	22	4.7	150	30	38	10	1.6	.11	2.9	.14
23	247	17	20	4.8	140	25	20	12	1.2	242	1.0	.05
24	127	16	21	4.9	170	20	15	70	.98	16	.61	.05
25	59	18	19	5.0	220	22	12	20	.94	5.1	.52	.60
26	263	24	17	4.8	800	20	13	10	.96	7.2	.39	.31
27	709	21	16	4.6	250	22	137	6.8	.75	2.7	.34	.13
28	96	16	15	4.5	150	24	63	4.9	.64	1.1	.32	.06
29	51	17	15	4.4	------	20	27	4.1	.62	.98	.31	.05
30	36	17	16	4.3	------	17	17	3.5	3.0	.96	.30	.04
31	28	------	17	4.2	------	16	------	3.1	------	.61	.27	------
TOTAL	4,904.2	634	1,132.0	221.4	4,656.7	2,053	658.9	1,300.9	259.32	301.84	18.24	88.27
MEAN	158	21.1	36.5	7.14	166	66.2	22.0	42.0	8.64	9.74	.59	2.94
MAX	2,070	43	249	18	1,000	476	137	303	145	242	4.7	55
MIN	4.3	15	6.9	4.2	3.5	16	5.7	3.1	.40	.11	.13	.02
CFSM	1.52	.20	.35	.07	1.60	.64	.21	.40	.08	.09	.006	.03
IN.	1.75	.23	.40	.08	1.67	.73	.24	.47	.09	.11	.006	.03
AC-FT	9,730	1,260	2,250	439	9,240	4,070	1,310	2,580	514	599	36	175

CAL YR 1970 TOTAL 24,829.51 MEAN 68.0 MAX 3,650 MIN .01 CFSM .65 IN 8.88 AC-FT 49,250
WTR YR 1971 TOTAL 16,228.77 MEAN 44.5 MAX 2,070 MIN .02 CFSM .43 IN 5.80 AC-FT 32,190

PEAK DISCHARGE (BASE, 4,500 CFS).--No peak above base.

06903400 CHARITON RIVER NEAR CHARITON, IOWA

LOCATION.--Lat 40°57'12", long 93°15'37", in SW1/4 NE1/4 sec.15, T.71 N., R.21 W., Lucas County, on right bank 15 ft downstream from bridge on county highway S43, 0.4 mile downstream from Wolf Creek, and 5.0 miles southeast of Chariton.
DRAINAGE AREA.--182 sq mi.
PERIOD OF RECORD.--October 1965 to current year. Occasional low-flow measurements, water years 1958-60, 1962, 1964.
GAGE.--Water-stage recorder. Datum of gage is 917.96 ft above mean sea level (levels by U.S. Weather Bureau from a Corps of Engineers bench mark).
AVERAGE DISCHARGE.--6 years, 71.5 cfs (5.34 inches per year, 51,800 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 2,080 cfs Oct. 9 (gage height, 17.28 ft); maximum gage height, 17.60 ft Feb. 19 (backwater from ice); minimum daily discharge, 0.64 cfs Sept. 24.
Period of record: Maximum discharge, 6,320 cfs Aug. 8, 1970 (gage height, 20.15 ft); minimum daily, 0.1 cfs Sept. 28, Oct. 2-6, Nov. 5-7, 1966.
Flood in March 1960 reached a stage of about 23 ft (discharge, about 15,000 cfs) and flood of June 5, 1947 reached a stage of 21.65 ft, from floodmark (discharge, 11,000 cfs). A discharge of 0.08 cfs was measured on Oct. 30, 1963.
REMARKS.--Records good except those for winter period, which are poor. Records of chemical analyses, water temperatures, and suspended-sediment loads for the current year are published in Part 2 of this report.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	51	26	2.8	6.4	560	26	28	5.1	2.1	7.1	.81
2	18	41	26	3.4	6.4	450	22	21	4.4	1.9	4.7	.86
3	13	37	24	4.0	6.3	200	19	17	3.6	1.3	4.3	.90
4	10	34	21	4.7	6.2	140	17	14	3.2	1.9	5.1	2.1
5	9.0	32	18	5.5	6.2	120	14	12	5.1	2.7	5.8	14
6	7.1	29	16	6.8	5.4	94	15	13	5.0	2.0	6.9	8.7
7	7.4	21	14	7.5	4.5	77	14	16	3.4	1.3	4.0	4.0
8	117	26	13	8.0	3.6	65	14	33	2.8	1.1	2.8	19
9	1,810	33	15	8.6	3.0	59	12	49	2.9	1.2	2.3	17
10	1,270	98	20	9.0	3.2	60	10	31	2.7	1.7	1.9	9.0
11	690	106	106	8.8	3.3	334	10	33	2.7	1.9	1.8	4.9
12	538	68	153	8.5	3.5	778	9.8	29	2.1	1.6	1.5	2.9
13	157	60	130	8.3	3.6	523	12	15	2.0	1.1	1.3	1.7
14	72	44	86	8.0	3.7	607	11	11	1.8	1.0	1.3	1.0
15	52	36	62	7.8	3.8	351	9.1	8.5	2.3	.90	1.5	.89
16	42	31	54	7.5	4.5	192	9.2	6.5	2.5	.90	2.6	.72
17	36	28	107	7.3	6.6	124	9.5	5.0	1.5	.90	1.5	.66
18	31	15	220	7.0	420	88	10	10	1.3	.90	1.2	.71
19	29	25	170	6.8	750	78	11	220	1.3	.89	1.0	.88
20	25	32	110	6.6	530	72	11	127	1.2	.81	.83	1.0
21	27	45	60	7.0	330	63	12	123	.90	.81	.90	.91
22	33	41	47	7.4	270	56	13	48	.97	.81	.90	.85
23	188	34	24	7.7	200	45	11	25	1.1	32	.84	.78
24	404	29	18	7.9	150	36	13	39	.91	110	.90	.64
25	307	26	9.8	8.1	100	34	13	92	.84	313	.84	.72
26	206	22	6.7	7.6	350	32	12	28	.90	436	.82	.74
27	368	21	5.7	6.8	700	32	25	16	.93	201	.81	.79
28	318	21	4.1	6.7	600	32	43	12	.92	83	.84	.71
29	284	21	2.9	6.6	------	32	28	9.6	.81	42	.84	.68
30	142	24	2.5	6.5	------	32	23	7.8	1.3	19	.81	.68
31	74	------	2.6	6.5	------	27	------	6.4	------	11	.81	------
TOTAL	7,308.5	1,131	1,574.3	215.7	4,480.2	5,393	458.6	1,105.8	66.48	1,276.72	68.74	99.23
MEAN	236	37.7	50.8	6.96	160	174	15.3	35.7	2.22	41.2	2.22	3.31
MAX	1,810	106	220	9.0	750	778	43	220	5.1	436	7.1	19
MIN	7.1	15	2.5	2.8	3.0	27	9.1	5.0	.81	.81	.81	.64
CFSM	1.30	.21	.28	.04	.88	.96	.08	.20	.01	.23	.01	.02
IN.	1.49	.23	.32	.04	.92	1.10	.09	.23	.01	.26	.01	.02
AC-FT	14,500	2,240	3,120	428	8,890	10,700	910	2,190	132	2,530	136	197

CAL YR 1970 TOTAL 45,990.41 MEAN 126 MAX 5,560 MIN .35 CFSM .69 IN 9.40 AC-FT 91,220
WTR YR 1971 TOTAL 23,178.27 MEAN 63.5 MAX 1,810 MIN .64 CFSM .35 IN 4.74 AC-FT 45,970

PEAK DISCHARGE (BASE, 1,200 CFS).--Oct. 9 (1715) 2,080 cfs (17.28 ft).

06903700 SOUTH FORK CHARITON RIVER NEAR PROMISE CITY, IOWA

LOCATION.--Lat 40°48'02", long 93°11'32", in SW1/4 SW1/4 sec.5, T.69 N., R.20 W., Wayne County, on right bank 20 ft downstream from bridge on county highway S50, 1.3 miles downstream from Jordan Creek and 4.3 miles northwest of Promise City.
DRAINAGE AREA.--168 sq mi.
PERIOD OF RECORD.--October 1967 to current year. Occasional low-flow measurements, water years 1958-66, published as "near Bethlehem". Monthly discharge measurements for March 1965 to September 1967 available in files of Iowa City district office.
GAGE.--Water-stage recorder. Datum of gage is 913.70 ft above mean sea level (Corps of Engineers bench mark).
EXTREMES.--Current year: Maximum discharge, 6,970 cfs Oct. 9 (gage height, 20.98 ft); minimum daily, 0.15 cfs Sept. 1-3.
Period of record: Maximum discharge, 7,660 cfs Aug. 8, 1970 (gage height, 21.32 ft); minimum daily, 0.09 cfs July 29-30, 1970.
Flood of Sept. 21, 1965, reached a stage of 25.5 ft, from floodmarks (discharge not determined).
REMARKS.--Records good except those for winter period, which are poor. Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used May 19, 20, June 22 to Sept. 30; stage-discharge relation affected by ice Nov. 22-24, Dec. 5, 6, 13-16, Dec. 19 to Mar. 10).

2.7	0	3.4	16	8.0	790
2.8	.25	3.8	46	15.0	2,850
2.9	.91	4.5	125	19.0	4,700
3.0	2.1	5.5	282	21.0	7,000
3.2	6.8				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	41	35	9.0	5.6	40	25	11	11	2.4	1.2	.15
2	14	38	30	9.2	5.6	30	20	11	9.1	2.2	1.2	.15
3	10	37	25	8.8	5.6	26	17	10	7.8	1.5	2.6	.15
4	8.6	37	20	8.4	5.6	23	15	9.5	7.1	1.7	2.1	.24
5	8.2	34	17	8.0	6.0	21	14	9.9	11	1.6	1.3	.94
6	8.0	33	15	6.0	5.0	20	13	136	11	1.3	1.1	1.3
7	8.0	30	14	7.0	4.2	22	13	106	9.1	.83	1.0	2.2
8	715	29	14	7.5	3.8	25	12	201	8.9	.91	.82	1.8
9	5,780	89	16	8.0	4.0	30	12	76	7.9	.91	.74	1.2
10	1,250	190	30	7.7	4.2	40	9.8	40	6.5	1.3	.74	.85
11	134	86	265	7.4	4.4	1,230	9.5	27	6.5	1.6	.66	.77
12	80	58	103	7.2	4.6	779	10	20	6.2	1.2	.66	.56
13	56	48	50	7.0	4.7	331	10	14	6.1	.74	.74	.41
14	45	42	35	6.8	4.8	319	12	12	5.5	.53	3.5	.34
15	36	36	40	6.6	4.9	227	11	9.3	30	.47	1.2	.25
16	29	33	55	6.4	5.0	108	9.5	7.5	8.9	.30	.52	.20
17	25	32	124	6.2	35	67	11	6.7	5.6	.32	.34	.20
18	24	32	216	6.0	2,400	67	12	14	4.5	.33	.29	.54
19	23	32	120	5.8	3,000	75	12	329	3.8	.29	.30	1.3
20	22	53	70	5.6	1,000	61	11	58	3.3	.27	.40	1.3
21	21	58	60	6.0	200	50	19	24	3.1	.74	.69	.93
22	87	35	35	6.3	140	43	20	18	2.7	.64	.94	.82
23	445	25	30	6.6	110	32	13	50	2.5	213	.82	.76
24	513	20	25	6.8	90	27	9.6	454	2.4	75	.60	.62
25	156	17	15	7.0	120	26	8.2	435	2.3	18	.41	1.2
26	84	21	13	6.2	1,600	28	7.7	60	2.4	31	.31	1.3
27	376	25	11	6.0	600	31	30	34	2.5	5.7	.25	1.1
28	169	25	10	5.9	70	31	49	24	2.3	2.7	.26	1.2
29	92	29	9.0	5.8	------	28	21	18	2.2	1.6	.23	1.1
30	63	32	8.0	5.7	------	24	13	14	2.8	1.4	.20	.69
31	42	------	8.5	5.6	------	27	------	13	------	1.2	.16	------
TOTAL	10,340.8	1,297	1,518.5	212.5	9,443.0	3,888	449.3	2,251.9	195.0	371.68	26.28	24.57
MEAN	334	43.2	49.0	6.85	337	125	15.0	72.6	6.50	12.0	.85	.82
MAX	5,780	190	265	9.2	3,000	1,230	49	454	30	213	3.5	2.2
MIN	8.0	17	8.0	5.6	3.8	20	7.7	6.7	2.2	.27	.16	.15
CFSM	1.99	.26	.29	.04	2.01	.74	.09	.43	.04	.07	.005	.005
IN.	2.29	.29	.34	.05	2.09	.86	.10	.50	.04	.08	.005	.005
AC-FT	20,510	2,570	3,010	421	18,730	7,710	891	4,470	387	737	52	49

CAL YR 1970 TOTAL 46,349.49 MEAN 127 MAX 5,780 MIN .09 CFSM .76 IN 10.26 AC-FT 91,930
WTR YR 1971 TOTAL 30,018.53 MEAN 82.2 MAX 5,780 MIN .15 CFSM .49 IN 6.65 AC-FT 59,540

PEAK DISCHARGE (BASE, 1,200 CFS)

DATE	TIME	G. H.	DISCHARGE	DATE	TIME	G. H.	DISCHARGE
10-9	1115	20.98	6,970	2-26	--	--	* 2,300
2-18	--	--	* 3,300	3-11	1830	12.38	2,010

* About

06903880 RATHBUN LAKE NEAR RATHBUN, IOWA
(Formerly published as Rathbun Reservoir near Rathbun, Iowa)

LOCATION.--Lat 40°49'30", long 92°53'33", in NW1/4 NE1/4 sec.35, T.70 N., R.18 W., Appanoose County, at control tower of Rathbun Dam, 1.8 miles north of Rathbun and 3.9 miles upstream from Walnut Creek and at mile 142.3.
DRAINAGE AREA.--549 sq mi.
PERIOD OF RECORD.--October 1969 to current year.
GAGE.--Water-stage recorder. Datum of gage is at mean sea level.
EXTREMES.--Current year: Maximum contents, 249,500 acre-ft Mar. 3 (elevation, 907.76 ft); minimum, 178,200 acre-ft Oct. 7 (elevation, 901.42 ft).
Period of record: Maximum contents, 249,500 acre-ft Mar. 3, 1971 (elevation 907.76 ft); minimum, 100 acre-ft Oct. 1-15, Nov. 17-21, 1969; minimum elevation, 855.40 ft Oct. 6-10, 1969.
REMARKS.--Reservoir is formed by earthfill dam completed in 1969. Storage began in November 1969. Release is controlled by two hydraulically controlled slide gages, 6 ft wide and 12 ft high, into forechamber of an 11-ft diameter horseshoe conduit through the dam. No dead storage. Maximum design discharge through gates is 5,000 cfs. Uncontrolled notch spillway is concrete overflow section 500 ft in length, located about 3,000 ft west of the right abutment of the dam and provides emergency discharge into the adjacent drainage area of Little Walnut Creek. Uncontrolled notch spillway is at elevation 926 ft above mean sea level, contents 552,000 acre-ft. Conservation pool level is at elevation 904.0 ft, contents 205,000 acre-ft. Reservoir is used for flood control, low-flow augumentation, conservation and recreation.
COOPERATION.--Records furnished by Corps of Engineers.

Capacity table (elevation, in feet, and contents, in acre-feet)

860	400	885	55,730
862	850	890	84,530
865	2,390	895	120,600
870	7,950	900	164,300
875	18,100	905	216,600
880	33,800	910	278,500

CONTENTS, IN ACRE-FEET, AT 0800, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178,700	211,250	206,000	207,000	205,300	248,400	220,000	206,800	205,700	202,800	201,300	196,900
2	179,000	210,350	205,700	206,700	205,300	249,100	217,900	207,000	205,100	202,600	201,000	196,800
3	179,000	209,600	205,700	206,800	205,300	249,400	214,700	206,700	205,000	202,400	201,700	196,500
4	178,400	209,100	205,800	207,000	205,300	248,800	212,600	206,600	205,100	202,200	201,400	196,300
5	178,300	208,200	206,000	206,900	205,700	248,300	210,700	206,700	205,300	202,600	201,300	197,100
6	178,200	206,800	205,700	206,000	205,700	247,600	209,000	206,900	205,200	202,500	201,200	196,900
7	178,200	206,600	205,300	205,500	205,700	245,400	206,800	207,200	205,400	202,400	201,000	196,800
8	178,300	205,900	205,400	204,800	205,700	243,600	206,000	208,200	205,200	202,300	200,800	196,700
9	186,700	206,900	205,700	204,700	205,600	241,700	206,700	208,100	204,800	202,500	200,800	197,900
10	200,800	207,700	205,500	204,800	205,700	240,100	205,900	208,300	204,800	202,300	200,700	197,500
11	209,800	207,800	208,000	204,800	205,700	239,800	205,800	208,500	204,900	202,200	200,500	197,500
12	212,900	208,200	209,000	204,800	205,700	242,800	206,000	208,800	204,900	201,900	200,200	197,400
13	212,600	208,200	209,600	204,800	205,600	245,000	206,300	208,500	205,000	201,900	200,100	197,300
14	210,500	208,100	209,800	205,000	205,600	245,500	206,100	208,500	204,900	201,700	200,000	196,800
15	207,800	207,600	209,800	204,900	205,600	246,000	205,900	208,500	204,900	201,700	199,700	196,500
16	205,500	206,800	210,800	204,800	205,600	245,500	205,900	208,500	205,000	201,400	199,600	196,300
17	205,400	206,100	211,300	204,900	205,700	244,300	206,000	208,200	204,900	201,100	199,500	196,100
18	205,400	205,900	211,900	204,900	209,300	242,800	205,900	208,100	204,800	201,000	199,100	195,900
19	205,400	205,600	212,900	204,900	215,400	242,000	205,900	210,000	204,700	201,100	198,900	196,500
20	205,400	206,500	212,500	204,900	226,200	240,000	206,100	210,900	204,600	200,700	198,900	196,100
21	205,400	205,700	212,400	205,000	232,700	238,200	206,200	210,100	204,000	200,200	198,800	195,900
22	205,900	207,100	212,400	205,000	235,700	236,900	205,900	209,100	204,400	199,700	198,800	195,700
23	206,500	206,600	212,700	204,900	237,100	234,900	206,200	208,000	205,100	199,900	198,700	195,700
24	208,100	205,300	211,500	204,900	238,100	233,000	206,100	208,300	203,800	200,300	198,700	195,300
25	209,800	204,700	211,200	204,900	238,300	231,100	206,000	210,000	203,700	200,500	198,500	195,300
26	211,000	204,900	210,600	205,100	238,900	229,200	205,800	209,300	203,500	201,200	198,300	195,400
27	211,700	205,100	210,000	205,100	243,300	227,400	206,100	208,300	203,000	201,600	197,900	195,400
28	212,500	205,000	209,300	205,100	246,800	225,800	207,200	207,300	203,000	202,200	197,700	195,400
29	212,600	205,500	208,800	205,100	------	224,300	206,700	206,700	202,800	201,900	197,500	195,300
30	212,600	205,300	208,000	205,300	------	222,100	206,500	206,300	203,300	201,900	197,300	195,200
31	212,300	------	207,600	205,300	------	220,000	------	206,000	------	201,600	197,100	------
(+)	904.62	903.99	904.20	904.00	907.54	905.30	904.10	904.06	903.81	903.66	903.24	903.06
(*)	+33,500	-7,000	+2,300	-2,300	+41,500	-26,800	-13,500	-500	-2,700	-1,700	-4,500	-1,900
MAX	212,900	211,250	212,900	207,000	246,800	249,400	220,000	210,900	205,700	202,800	201,700	197,900
MIN	178,200	204,700	205,300	204,700	205,300	220,000	205,800	206,000	202,800	199,700	197,100	195,200

CAL YR.....*+205,140
WTR YR.....*+16,400

\+ Elevation, in feet, at end of month.
* Change in contents, in acre-feet.

06903900 CHARITON RIVER NEAR RATHBUN, IOWA

LOCATION.--Lat 40°49'22", long 92°53'22", in SE1/4 NE1/4 sec.35, T.70 N., R.18 W., Appanoose County, on left bank 600 ft downstream from outlet of Rathbun Dam, 1.8 miles north of Rathbun and 3.7 miles upstream from Walnut Creek and at mile 142.1.
DRAINAGE AREA.--549 sq mi.
PERIOD OF RECORD.--October 1956 to current year. Monthly discharge only for some periods, published in WSP 1730.
GAGE.--Water-stage recorder. Datum of gage is 847.92 ft above mean sea level. Prior to Nov. 16, 1960, nonrecording gage and Nov. 17, 1960 to Sept. 30, 1969, recording gage, at site 3.1 miles downstream at datum 4.65 ft lower.
AVERAGE DISCHARGE.--15 years, 278 cfs (6.88 inches per year, 201,400 acre-ft per year); median of yearly mean discharges, 230 cfs (5.7 inches per year, 167,000 acre-ft per year).
EXTREMES.--Current year: Maximum discharge, 1,460 cfs Oct. 13 (gage height, 12.90 ft); minimum daily, 7.6 cfs May 15.
Period of record: Maximum discharge, 21,800 cfs Mar. 31, 1960 (gage height, 25.3 ft, from floodmark, site and datum then in use); minimum daily, 0.1 cfs Oct. 12-14, 17-24, 1957, Oct. 11, 1966.
REMARKS.--Records good. Flow regulated by Rathbun Reservoir since Nov. 21, 1969 (see sta. 06903880). Records of periodic chemical and suspended-sediment analysis for the current year are published in Part 2 of this report.
REVISIONS.--WSP 1560: Drainage area.

Rating table (gage height, in feet, and discharge, in cubic feet per second).
(Shifting-control method used Apr. 8 to May 27, Sept. 26-30).

2.0	6.2	5.5	242
2.2	11	7.0	416
2.5	21	9.0	712
3.0	44	13.0	1,480
4.0	107		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	504	28	305	28	500	1,020	12	202	9.7	11	11
2	7.9	503	29	305	28	499	1,020	12	101	9.7	11	11
3	7.9	502	28	307	28	498	1,010	12	12	10	13	11
4	8.1	501	29	304	28	499	1,010	12	12	10	13	11
5	8.2	500	28	304	27	759	1,010	8.6	12	11	12	11
6	8.3	385	29	306	27	987	1,010	15	12	10	11	11
7	8.4	105	29	306	27	980	693	8.1	12	9.4	11	11
8	8.4	105	29	186	27	975	71	7.9	12	9.4	12	12
9	8.6	107	29	32	27	972	17	8.0	12	10	12	12
10	8.2	106	34	32	27	972	16	8.9	12	9.9	12	12
11	7.9	105	36	32	27	1,020	16	8.6	12	11	11	12
12	451	105	29	32	27	793	15	7.9	12	11	12	12
13	1,450	212	29	32	27	1,010	15	7.7	11	11	11	12
14	1,440	341	29	31	27	1,000	15	7.7	12	12	11	11
15	1,310	340	29	32	27	998	14	7.6	12	12	11	12
16	464	339	30	32	27	991	14	7.7	12	11	11	11
17	11	338	154	32	28	988	14	8.0	12	11	43	12
18	11	273	319	31	409	988	14	12	12	11	12	12
19	11	105	317	31	700	985	14	27	12	11	12	12
20	11	105	313	31	527	989	14	317	11	11	11	12
21	11	106	312	30	496	995	14	502	12	11	11	12
22	12	105	312	30	496	994	14	506	12	11	11	12
23	13	105	310	29	496	1,000	13	511	11	11	11	12
24	13	106	311	29	496	1,000	13	517	12	11	11	13
25	13	85	310	30	497	1,000	13	516	11	11	11	14
26	169	30	310	29	520	1,000	13	511	11	10	11	14
27	517	29	310	29	518	1,010	13	510	11	12	11	16
28	515	29	312	29	499	1,010	12	419	10	12	11	14
29	511	29	307	29	------	1,010	13	200	10	12	11	14
30	509	29	306	28	------	1,010	12	201	9.8	12	11	14
31	505	------	306	28	------	1,020	------	201	------	11	11	------
TOTAL	8,037.0	6,234	4,983	3,023	6,118	28,452	7,152	5,109.7	626.8	335.1	384	366
MEAN	259	208	161	97.5	219	918	238	165	20.9	10.8	12.4	12.2
MAX	1,450	504	319	307	700	1,020	1,020	517	202	12	43	16
MIN	7.9	29	28	28	27	498	12	7.6	9.8	9.4	11	11
AC-FT	15,940	12,370	9,880	6,000	12,140	56,430	14,190	10,140	1,240	665	762	726

CAL YR 1970 TOTAL 27,715.96 MEAN 75.9 MAX 1,450 MIN .90 AC-FT 54,970
WTR YR 1971 TOTAL 70,820.60 MEAN 194 MAX 1,450 MIN 7.6 AC-FT 140,500

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called either measurements at miscellaneous sites or supplemental low-flow measurements.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for low flow and high flow are given in a third or fourth table.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of a stream. The column headed "Period of record" shows the period in which measurements were made for most water years at the same, or practically the same, site.

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		MINNESOTA RIVER BASIN				
5-3176.5	BLUE EARTH R NR LAKOTA, IOWA.	LAT 4330XX, LONG 9409XX, NEAR SE CORNER OF SEC.31, T.100 N., R.27 W., AT BRIDGE, 4 MILES NE OF LAKOTA.	64.6	1957-	08-23-71	.94
5-3177	UNION SLOUGH OUTLET NR LAKOTA, IOWA.	LAT 4324XX, LONG 9407XX, NEAR S 1/4 CORNER OF SEC.11, T.99 N., R.28 W., AT BRIDGE, 2 MILES NW OF LAKOTA.	86.4	1957-	08-23-71	1.1
5-3178.1	WF BLUE EARTH R BL MINN.-IOWA STATE LINE.	LAT 4326XX, LONG 9404XX, NEAR W 1/4 CORNER OF SEC.36, T.101 N., R.28 W., AT BRIDGE, 9 MILES NW OF LAKOTA.	154	1957-	08-26-71	1.5
		WAPSIPINICON RIVER BASIN				
5-4205.4	WAPSIPINICON R NR RICEVILLE, IOWA.	LAT 4320XX, LONG 9234XX, IN NE 1/4 SEC. 12, T.98 N., R.15 W., AT BRIDGE, 2.5 MILES SOUTH OF RICEVILLE.	72.3	1957-	09-02-71	6.8
5-4205.8	WAPSIPINICON R NR IONIA, IOWA.	LAT 4301XX, LONG 9223XX, IN NW 1/4 SEC. 33, T.95 N., R.13 W., AT BRIDGE, 4 MILES SE OF IONIA.	161	1957-	09-02-71	11
*5-4206.4	LITTLE WAPSIPINICON R AT ELMA, IOWA.	LAT 4314XX, LONG 9227XX, IN NW 1/4 SEC. 12, T.97 N., R.14 W., AT BRIDGE ON COUNTY ROAD A NEAR WEST CITY LIMITS OF ELMA.	37.3	1957-	09-02-71	3.6
5-4206.6	WAPSIPINICON R NR NEW HAMPTON, IOWA	LAT 4259XX, LONG 9222XX, IN NW 1/4 SEC. 10, T.94 N., R.13 W., AT BRIDGE, 5 MILES SW OF NEW HAMPTON.	291	1957-	09-02-71	23
5-4206.8	WAPSIPINICON R NR TRIPOLI, IOWA.	LAT 4250XX, LONG 9215XX, IN SW 1/4 SEC. 27, T.93 N., R.12 W., AT BRIDGE ON STATE HIGHWAY 93, 2 MILES NORTH OF TRIPOLI.	343	1957-	09-01-71	21
5-4207	SF WAPSIPINICON R NR FREDERICKSBURG, IOWA.	LAT 4301XX, LONG 9213XX, IN NW 1/4 SEC. 36, T.95 N., R.12 W., AT BRIDGE, 3 MILES NORTH OF FREDERICKSBURG.	62.2	1957-	09-01-71	5.3
5-4207.2	SF WAPSIPINICON R NR TRIPOLI, IOWA.	LAT 4251XX, LONG 9214XX, IN NW 1/4 SEC. 26, T.93 N., R.12 W., AT BRIDGE ON STATE HIGHWAY 93, 3 MILES NORTH OF TRIPOLI.	144	1957-	09-01-71	13
5-4207.4	WAPSIPINICON R AT TRIPOLI, IOWA.	LAT 4248XX, LONG 9214XX, IN SW 1/4 SEC. 2, T.92 N., R.12 W., AT BRIDGE, 1.5 MILES EAST OF TRIPOLI.	499	1957-	09-01-71	23

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		WAPSIPINICON RIVER BASIN--CONTINUED				
5-4208	CRANE CR NR DENVER, IOWA.	LAT 423832, LONG 921521, IN NW 1/4 SEC. 3, T.90 N., R.12 W., AT BRIDGE, 5 MILES SE OF DENVER.	63.6	1957-	09-01-71	0
5-4208.2	CRANE CR AT DUNKERTON, IOWA.	LAT 4234XX, LONG 9210XX, IN SW 1/4 SEC. 29, T.90 N., R.11 W., AT BRIDGE, NEAR WEST CITY LIMITS OF DUNKERTON.	101	1957-	09-01-71	0
5-4208.4	L WAPSIPINICON R NR WESTGATE, IOWA.	LAT 4247XX, LONG 9205XX, IN NE 1/4 SEC. 13, T.92 N., R.11 W., AT BRIDGE, 4.5 MILES NW OF WESTGATE.	57.4	1957-	09-01-71	4.2
5-4208.6	BUCK CR NR LITTLETON, IOWA.	LAT 4235XX, LONG 9203XX, NEAR CENTER OF SEC.29, T.90 N., R.10 W., AT BRIDGE, 3 MILES NW OF LITTLETON.	57.0	1957-	08-01-71	.06
5-4209	L WAPSIPINICON R AT LITTLETON, IOWA.	LAT 4233XX, LONG 9202XX, IN NE CORNER SEC.9, T.89 N., R.10 W., AT BRIDGE, 0.5 MILE NORTH OF LITTLETON.	205	1957-	09-01-71	10
5-4209.4	OTTER CR NR OTTERVILLE, IOWA.	LAT 4233XX, LONG 9157XX, NEAR SW CORNER OF SEC.5, T.89 N., R.9 W., AT BRIDGE, 2 MILES NORTH OF OTTERVILLE.	101	1957-	09-01-71	12
5-4215	WAPSIPINICON R AT STONE CITY, IOWA.	LAT 4207XX, LONG 9121XX, IN NE 1/4 SEC. 6, T.84 N., R.4 W., AT BRIDGE, IN STONE CITY.	1324	+1903-14. 1957-	09-01-71	115
*5-4215.5	BUFFALO CR ABOVE WINTHROP, IOWA.	LAT 4230XX, LONG 9144XX, NEAR NE CORNER SEC. 25, T.89 N., R. 8 W., AT BRIDGE, 1.5 MILES NE OF WINTHROP.	68.2	1957-	09-01-71	4.4
5-4217	BUFFALO CR NR STONE CITY, IOWA.	LAT 4208XX, LONG 9121XX, NEAR E 1/4 CORNER SEC.30, T.85 N., R.4 W., AT BRIDGE, 2 MILES NORTH OF STONE CITY.	217	1957-	09-01-71	24
5-4218	YANKEE RUN AT WHEATLAND, IOWA.	LAT 414934, LONG 905025, IN NE 1/4 SEC. 16, T.81 N., R.1 E., AT BRIDGE, NEAR SOUTH CITY LIMITS OF WHEATLAND.	52.2	1957-	09-02-71	4.1
5-4218.5	MUD CR NR PLAINVIEW, IOWA.	LAT 414202, LONG 904526, IN SW 1/4 SEC. 29, T.80 N., R.2 E., AT BRIDGE, 2.5 MILES NE OF PLAINVIEW.	109	1957-	09-02-71	5.4
5-4219	SILVER CR NR DE WITT, IOWA.	LAT 414709, LONG 903313, IN SE 1/4 SEC. 25, T.81 N., R.3 E., AT BRIDGE, 2.5 MILES SOUTH OF DE WITT.	60.8	1957-	09-02-71	9.6
5-4221	BROPHYS CR NR LOW MOOR, IOWA.	LAT 414856, LONG 902414, NEAR N 1/4 CORNER SEC.20, T.81 N., R.5 E., AT BRIDGE ON U. S. HIGHWAY 30, 3 MILES NW OF LOW MOOR.	72.8	1957-	09-02-71	9.9
		IOWA RIVER BASIN				
5-4483	WF IOWA R NR BRITT, IOWA.	LAT 4306XX, LONG 9345XX, NEAR CENTER OF SEC.25, T.96 N., R.25 W., AT BRIDGE ON U. S. HIGHWAY 18, 3 MILES EAST OF BRITT.	61.5	1957-	09-01-71	1.2
*5-4484	WESTMAIN DRAINAGE DITCH 1 & 2 NR BRITT, IOWA.	LAT 4306XX, LONG 9347XX, IN SW 1/4 SEC. 27, T.96 N., R.25 W., AT BRIDGE ON U.S. HIGHWAY 18 NEAR EAST CITY LIMITS OF BRITT.	21.2	1958-	10-13-70	2.3
5-4511	SF IOWA R NR ALDEN, IOWA.	LAT 422RXX, LONG 9327XX, NEAR NW CORNER OF SEC.5, T.88 N., R.22 W., AT BRIDGE, 5 MILES SW OF ALDEN.	79.5	1957-	09-02-71	.12
5-4511.5	TIPTON CR NR NEW PROVIDENCE, IOWA.	LAT 4220XX, LONG 9312XX, IN SW 1/4 SEC. 21, T.87 N., R.20 W., AT BRIDGE, 3 MILES NW OF NEW PROVIDENCE.	81.4	1957-	09-02-71	.08
5-4512	SF IOWA R NR NEW PROVIDENCE, IOWA.	LAT 4219XX, LONG 9310XX, NEAR N 1/4 CORNER SEC.27, T.87 N., R.20 W., AT BRIDGE, 3 MILES NORTH OF NEW PROVIDENCE.	223	1957-	09-02-71	3.4

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		IOWA RIVER BASIN--CONTINUED				
5-4512.5	BEAVER CR NR ELDORA, IOWA.	LAT 4221XX, LONG 9308XX, NEAR CENTER OF SEC.13, T.87 N., R.20 W., AT BRIDGE, 2 MILES SW OF ELDORA.	69.4	1957-	09-02-71	1.7
5-4513	HONEY CR NR NEW PROVIDENCE, IOWA.	LAT 4216XX, LONG 9311XX, AT E 1/4 CORNER SEC.16, T.86 N., R.20 W., AT BRIDGE, 1.5 MILES SOUTH OF NEW PROVIDENCE.	66.5	1957-	09-02-71	.10
5-4513.5	HONEY CR AT BANGOR, IOWA.	LAT 4210XX, LONG 9305XX, NEAR W 1/4 CORNER SEC.16, T.85 N., R.19 W., AT BRIDGE, 1 MILE EAST OF BANGOR.	95.6	1950-	09-02-71	1.1
5-4514	MINERVA CR AT CLEMONS, IOWA.	LAT 4208XX, LONG 9309XX, NEAR CENTER OF SEC.35, T.85 N., R.20 W., AT BRIDGE, 1 MILE NE OF CLEMONS.	69.6	1957-	09-02-71	.17
5-4514.5	MINERVA CR NR CLEMONS, IOWA.	LAT 4207XX, LONG 9305XX, NEAR CENTER OF SEC.5, T.84 N., R.19 W., AT BRIDGE, 3.5 MILES EAST OF CLEMONS.	148	1950-	09-02-71	3.7
5-4573	OTTER CR NR OTRANTO, IOWA.	LAT 4328XX, LONG 9258XX, IN NW 1/4 SEC. 22, T.100 N., R.18 W., AT BRIDGE, 1.5 MILES NE OF OTRANTO.	60.3	1957-	09-02-71	5.3
5-4573.5	CEDAR R AT OTRANTO, IOWA.	LAT 4327XX, LONG 9259XX, IN NW 1/4 SEC. 28, T.100 N., R.18 W., AT BRIDGE NEAR EAST CITY LIMITS OF OTRANTO.	656	1957-	09-02-71	73
5-4574	DEER CR NR MELTONVILLE, IOWA.	LAT 4326XX, LONG 9305XX, IN SW 1/4 SEC. 27, T.100 N., R.19 W., AT BRIDGE, 2.5 MILES WEST OF MELTONVILLE.	67.5	1957-	09-01-71	2.3
5-4574.5	DEER CR AT ST. ANSGAR, IOWA.	LAT 4323XX, LONG 9258XX, IN SW 1/4 SEC. 15, T.99 N., R.18 W., AT BRIDGE, 2.5 MILES NW OF ST. ANSGAR.	97.5	1957-	09-02-71	4.2
5-4576	ROCK CR NR FLOYD, IOWA.	LAT 4313XX, LONG 9249XX, IN NW 1/4 SEC. 24, T.97 N., R.17 W., AT BRIDGE, 6 MILES NW OF FLOYD.	69.7	1957-	09-02-71	9.4
5-4578	L CEDAR R NR STACEYVILLE, IOWA.	LAT 4328XX, LONG 9247XX, IN NE 1/4 SEC. 19, T.100 N., R.16 W., AT BRIDGE, 2 MILES NORTH OF STACEYVILLE.	77.3	1957-	09-02-71	4.1
5-4584	QUARTER SECTION RUN NR DENVER, IOWA.	LAT 423951, LONG 922346, IN NE 1/4 SEC. 29, T.91 N., R.13 W., AT BRIDGE, 3 MILES SW OF DENVER.	83.5	1957-	09-01-71	0
5-4585.5	BEAVERDAM CR NR ROCKWELL, IOWA.	LAT 4258XX, LONG 9315XX, NEAR EAST 1/4 CORNER SEC.18, T.94 N., R.20 W., AT BRIDGE, 3 MILES SW OF ROCKWELL.	72.4	1957-	09-02-71	4.3
5-4586	BAILEY CR NR SHEFFIELD, IOWA.	LAT 4254XX, LONG 9316XX, IN NW 1/4 SEC. 1, T.93 N., R.21 W., AT BRIDGE, 4 MILES NW OF SHEFFIELD.	75.2	1957-	09-23-71	5.4
5-4587.5	OTTER CR NR HANSELL, IOWA.	LAT 4246XX, LONG 9307XX, IN NW 1/4 SEC. 29, T.92 N., R.19 W., AT BRIDGE, 1 MILE WEST OF HANSELL.	92.0	1957-	09-01-71	8.4
5-4587.7	SQUAW CR NR HANSELL, IOWA.	LAT 4244XX, LONG 9307XX, NEAR CENTER OF SEC.32, T.92 N., R.19 W., AT BRIDGE, 1.5 MILES SW OF HANSELL.	24.2	1957-	09-01-71	2.7
5-4587.8	HARTGRAVE CR NR HANSELL, IOWA.	LAT 4244XX, LONG 9305XX, IN NW 1/4 SEC. 34, T.92 N., R.19 W., AT BRIDGE, 1.5 MILES SE OF HANSELL.	161	1957-	09-01-71	18
5-4587.9	BOYLAN CR NR BRISTOW, IOWA.	LAT 4246XX, LONG 9256XX, IN NE 1/4 SEC. 23, T.92 N., R.18 W., AT BRIDGE, 1 MILE WEST OF BRISTOW.	55.7	1957-	09-22-71	.32

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		IOWA RIVER BASIN--CONTINUED				
5-4588	MAYNES CR NR HAMPTON, IOWA.	LAT 424lXX, LONG 9312XX, IN NW 1/4 SEC. 22, T.91 N., R.20 W., AT BRIDGE ON U.S. HIGHWAY 65, 4 MILES SOUTH OF HAMPTON.	71.0	1957-	09-01-71	4.0
5-4588.5	MAYNES CR NR DUMONT, IOWA.	LAT 4242XX, LONG 9258XX, IN SW 1/4 SEC. 15, T.91 N., R.18 W., AT BRIDGE, 4 MILES SOUTH OF DUMONT.	121	1957-	09-02-71	9.4
5-4590.5	LIME CR NR SCARVILLE, IOWA.	LAT 4327XX, LONG 9335XX, IN SW 1/4 SEC. 28, T.100 N., R.23 W., AT BRIDGE, 3.5 MILES SE OF SCARVILLE.	113	1957-	09-01-71	9.5
5-4592	WINNEBAGO R NR FOREST CITY, IOWA	LAT 4318XX, LONG 9339XX, IN NW 1/4 SEC. 23, T.98 N., R.24 W., AT BRIDGE, 2.5 MILES NORTH OF FOREST CITY.	205	1957-	09-01-71	10
5-4593	WINNEBAGO R NR FERTILE, IOWA.	LAT 4315XX, LONG 9326XX, NEAR WEST 1/4 CORNER SEC.3, T.97 N., R.22 W., AT BRIDGE, 1.5 MILES SW OF FERTILE.	303	1957-	09-01-71	21
5-4594	BEAVER CR NR FERTILE, IOWA.	LAT 4316XX, LONG 9327XX, IN SW 1/4 SEC. 28, T.98 N., R.22 W., AT BRIDGE, 2 MILES NW OF FERTILE.	54.9	1957-	09-01-71	4.8
5-4602	WILLOW CR AT MASON CITY, IOWA.	LAT 430946, LONG 931420, NEAR WEST 1/4 CORNER SEC.5, T.96 N., R.20 W., AT BRIDGE NEAR WEST CITY LIMITS OF MASON CITY.	86.0	1957-	09-02-71	6.8
5-4611	COLD WATER CR NR GREENE, IOWA.	LAT 4253XX, LONG 9251XX, IN SW 1/4 SEC. 10, T.93 N., R.17 W., AT BRIDGE, 2.5 MILES SW OF GREENE.	56.8	1957-	09-02-71	.01
5-4613	FLOOD CR NR ROCKFORD, IOWA.	LAT 4303XX, LONG 9251XX, IN NW 1/4 SEC. 15, T.95 N., R.17 W., AT BRIDGE, 5 MILES EAST OF ROCKFORD.	59.3	1957-	09-02-71	0
5-4614	FLOOD CR NR PACKARD, IOWA.	LAT 4253XX, LONG 9242XX, IN NE 1/4 SEC. 23, T.93 N., R.16 W., AT BRIDGE, 2 MILES NE OF PACKARD.	145	1957-	09-02-71	.20
5-4627	BEAVER CR NR ACKLEY, IOWA.	LAT 4234XX, LONG 9302XX, IN SW 1/4 SEC. 36, T.90 N., R.19 W., AT BRIDGE NEAR EAST CITY LIMITS OF ACKLEY.	55.5	1957-	09-01-71	2.9
5-4628	S BEAVER CR NR PARKERSBURG, IOWA.	LAT 4234XX, LONG 9249XX, IN SE 1/4 SEC. 35, T.90 N., R.17 W., AT CULVERT, 2 MILES SW OF PARKERSBURG.	114	1957-	09-01-71	5.6
5-4631	BLACK HAWK CR NR GRUNDY CENTER, IOWA.	LAT 4222XX, LONG 9244XX, NEAR E 1/4 CORNER SEC.8, T.87 N., R.16 W., AT BRIDGE, 2 MILES EAST OF GRUNDY CENTER.	71.0	1957-	09-02-71	4.0
5-4632	MOSQUITO CR AT REINBECK, IOWA.	LAT 4220XX, LONG 9237XX, IN SE 1/4 SEC. 20, T.87 N., R.15 W., AT BRIDGE, 1 MILE WEST OF REINBECK.	24.0	1957-	09-02-71	.92
5-4633	BLACK HAWK CR AT REINBECK, IOWA.	LAT 4220XX, LONG 9236XX, NEAR E 1/4 CORNER SEC.21, T.87 N., R.15 W., AT BRIDGE, 1 MILE NORTH OF REINBECK.	135	1957-	09-02-71	9.0
5-4634	N BLACK HAWK CR AT DIKE, IOWA.	LAT 4227XX, LONG 9237XX, NEAR N 1/4 CORNER SEC.8, T.88 N., R.15 W., AT BRIDGE NEAR SE CITY LIMITS OF DIKE.	76.3	1957-	09-02-71	2.0
5-4640.5	MILLERS CR NR LAPORTE CITY, IOWA.	LAT 4223XX, LONG 9215XX, IN SE 1/4 SEC. 33, T.88 N., R.12 W., AT BRIDGE ON U. S. HIGHWAY 218, 6 MILES NW OF LAPORTE CITY.	54.8	1957-	09-01-71	6.5
5-4641	WOLF CR NR BEAMAN, IOWA.	LAT 421247, LONG 924712, IN SW 1/4 SEC. 36, T.86 N., R.17 W., AT BRIDGE, 2 MILES SE OF BEAMAN.	63.2	1957-	09-01-71	3.4

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		IOWA RIVER BASIN--CONTINUED				
5-4641.5	TWELVE MILE CR NR BUCKINGHAM, IOWA.	LAT 4214XX, LONG 9226XX, IN SW 1/4 SEC. 24, T.86 N., R.14 W., AT BRIDGE, 1.5 MILES SOUTH OF BUCKINGHAM.	76.8	1957-	09-01-71	3.8
5-4642	WOLF CR NR BUCKINGHAM, IOWA.	LAT 421533, LONG 922142, IN NE 1/4 SEC. 21, T.86 N., R.13 W., AT BRIDGE, 4.5 MILES SE OF BUCKINGHAM.	287	1957-	09-01-71	19
5-4642.5	WOLF CR AT LAPORTE CITY, IOWA.	LAT 4219XX, LONG 9212XX, IN SW 1/4 SEC. 25, T.87 N., R.12 W., AT BRIDGE ON U. S. HIGHWAY 218 IN LAPORTE CITY.	327	1957-	09-01-71	31
5-4643	SPRING CR NR LAPORTE CITY, IOWA.	LAT 4220XX, LONG 9206XX, IN NW 1/4 SEC. 23, T.87 N., R.11 W., AT BRIDGE, 5 MILES NE OF LAPORTE CITY.	57.5	1957-	09-01-71	8.3
5-4643.2	E BLUE CR NR CENTER POINT, IOWA.	LAT 421141, LONG 914828, IN NW 1/4 SEC. 8, T.85 N., R.8 W., AT BRIDGE, 1 MILE WEST OF CENTER POINT.	27.1	1957-	09-02-71	2.1
5-4643.5	BEAR CR AT SHELLSBURG, IOWA.	LAT 420539, LONG 915334, IN NW 1/4 SEC. 15, T.84 N., R.9 W., AT BRIDGE, 1 MILE WEST OF SHELLSBURG.	55.8	1957-	09-02-71	1.8
5-4644	BEAR CR NR PALO, IOWA.	LAT 420455, LONG 914740, IN SE 1/4 SEC. 17, T.84 N., R.8 W., AT BRIDGE, 1 MILE NORTH OF PALO.	95.9	1957-	09-02-71	5.0
5-4644.6	OTTER CR NR CEDAR RAPIDS, IOWA.	LAT 420357, LONG 914427, IN SE 1/4 SEC. 24, T.84 N., R.8 W., AT BRIDGE, 7 MILES NW OF CEDAR RAPIDS.	65.1	1957-	09-02-71	6.8
5-4645.5	PRAIRIE CR NR BLAIRSTOWN, IOWA.	LAT 415606, LONG 920751, NEAR NORTH 1/4 CORNER SEC.9, T.82 N., R.11 W., AT BRIDGE, 3 MILES NW OF BLAIRSTOWN.	64.2	1957-	09-02-71	1.9
5-4646	PRAIRIE CR AT NORWAY, IOWA.	LAT 415335, LONG 915543, NEAR SW CORNER SEC.19, T.82 N., R.9 W., AT BRIDGE, 1 MILE SW OF NORWAY.	126	1957-	09-02-71	5.9
5-4646.5	PRAIRIE CR AT CEDAR RAPIDS, IOWA.	LAT 415549, LONG 914034, IN NW 1/4 SEC. 9, T.82 N., R.7 W., AT BRIDGE, 3 MILES SOUTH OF CEDAR RAPIDS.	208	1957-	09-02-71	16
5-4647	INDIAN CR AT CEDAR RAPIDS, IOWA.	LAT 415942, LONG 913703, IN SW 1/4 SEC. 13, T.83 N., R.7 W., AT BRIDGE, NEAR NE CITY LIMITS OF CEDAR RAPIDS.	72.0	1957-	09-02-71	6.9
5-4647.5	BIG CR AT BERTRAM, IOWA.	LAT 415723, LONG 913135, NEAR EAST 1/4 CORNER SEC.34, T.83 N., R.6 W., AT BRIDGE NEAR EAST CITY LIMITS OF BERTRAM.	81.2	1957-	09-02-71	18
5-4648	ROCK CR AT ROCHESTER, IOWA.	LAT 414040, LONG 910952, IN NW 1/4 SEC. 2, T.79 N., R.3 W., AT BRIDGE, 0.5 MILE NW OF ROCHESTER.	63.4	1957-	09-01-71	6.3
5-4648.5	SUGAR CR NR BENNETT, IOWA.	LAT 414156, LONG 910243, NEAR S 1/4 CORNER OF SEC.26, T.80 N., R.2 W., AT BRIDGE, 4.5 MILES SW OF BENNETT.	80.7	1957-	09-01-71	4.1
5-4649	MUD CR NR WILTON JUNCTION, IOWA.	LAT 413445, LONG 910217, IN NW 1/4 SEC. 12, T.78 N., R.2 W., AT BRIDGE, 1 MILE SW OF WILTON JUNCTION.	102	1957-	09-01-71	5.3
5-4649.2	SUGAR CR NR MOSCOW, IOWA.	LAT 413400, LONG 910409, NEAR N 1/4 CORNER OF SEC.15, T.78 N., R.2 W., AT BRIDGE, 1 MILE SE OF MOSCOW.	218	1957-	09-01-71	15
5-4649.4	WAPSINONOC CR AT WEST LIBERTY, IOWA. (FORMERLY EAST BRANCH)	LAT 413326, LONG 911519, IN SE 1/4 SEC. 13, T.78 N., R.4 W., AT BRIDGE ON STATE HIGHWAY 76, 1/2 MILE SE OF WEST LIBERTY.	51.7	1957-	09-01-71	2.7
5-4649.5	WB WAPSINONOC CR AT WEST LIBERTY, IOWA.	LAT 413348, LONG 911613, NEAR S 1/4 CORNER OF SEC.14, T.78 N., R.4 W., AT BRIDGE, 1 MILE SOUTH OF WEST LIBERTY.	52.6	1957-	09-01-71	.99

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		FLINT RIVER BASIN				
5-4697	FLINT R NR BURLINGTON, IOWA.	LAT 405200, LONG 911203, IN NE 1/4 SEC. 16, T.70 N., R.3 W., AT BRIDGE, 6 MILES NW OF BURLINGTON.	107	1958-	08-26-71	1.9
		SKUNK RIVER BASIN				
5-4698	S SKUNK R NR ELLSWORTH, IOWA.	LAT 4219XX, LONG 9335XX, NEAR N 1/4 CORNER OF SEC.36, T.87 N., R.24 W., AT BRIDGE ON STATE HIGHWAY 175, NEAR WEST CITY LIMITS OF ELLSWORTH.	54.9	1957-	08-24-71	.19
5-4698.5	MUD LAKE DRAINAGE DITCH 71 AT JEWELL, IOWA.	LAT 4219XX, LONG 9338XX, IN NW 1/4 SEC. 28, T.87 N., R.24 W., AT BRIDGE, 1 MILE NORTH OF JEWELL.	64.1	1957-	08-24-71	.78
5-4699.5	S SKUNK R AT RANDALL, IOWA.	LAT 4214XX, LONG 9335XX, IN NE 1/4 SEC. 25, T.86 N., R.24 W., AT BRIDGE, 1 MILE EAST OF RANDALL.	160	1957-	08-24-71	.72
5-4702	SQUAW CR NR STANHOPE, IOWA.	LAT 421234, LONG 934707, NEAR N 1/4 CORNER OF SEC.5, T.85 N., R.25 W., AT BRIDGE, 5 MILES SOUTH OF STANHOPE.	62.6	1957-	08-24-71	.03
5-4710.5	S SKUNK R AT COLFAX, IOWA.	LAT 414055, LONG 931447, IN NW 1/4 SEC. 1, T.79 N., R.21 W., AT BRIDGE ON STATE HIGHWAY 117, AT NORTH CITY LIMITS OF COLFAX.	803	1957-	08-23-71	33
5-4711	E8 INDIAN CR NR NEVADA, IOWA.	LAT 4102XX, LONG 9322XX, NEAR N 1/4 CORNER OF SEC.2, T.83 N., R.22 W., AT BRIDGE, 4 MILES NE OF NEVADA.	65.7	1957-	08-23-71	.05
5-4711.5	WB INDIAN CR NR IOWA CENTER, IOWA.	LAT 4156XX, LONG 9326XX, IN NW 1/4 SEC. 8, T.82 N., R.22 W., AT BRIDGE, 2 MILES NW OF IOWA CENTER.	65.9	1957-	08-23-71	.82
5-4711.8	INDIAN CR NR IOWA CENTER, IOWA.	LAT 4155XX, LONG 9325XX, NEAR CENTER OF SEC.16, T.82 N., R.22 W., AT BRIDGE, 1 MILE SW OF IOWA CENTER.	203	1957-	08-23-71	.63
5-4713.5	CLEAR CR NR MINGO, IOWA.	LAT 4147XX, LONG 9316XX, IN SW 1/4 SEC. 35, T.81 N., R.21 W., AT BRIDGE, 1 MILE NE OF MINGO.	84.1	1957-	08-23-71	1.5
5-4714	ELK CR NR TAINTOR, IOWA.	LAT 4129XX, LONG 9251XX, IN NE 1/4 SEC. 7, T.77 N., R.17 W., AT BRIDGE, 6 MILES SW OF TAINTOR.	59.9	1957-	08-23-71	.92
5-4721	N SKUNK R NR NEWTON, IOWA.	LAT 4147XX, LONG 9302XX, IN NW 1/4 SEC. 35, T.81 N., R.19 W., AT BRIDGE, 6 MILES NORTH OF NEWTON.	101	1957-	08-23-71	1.5
5-4723	N SKUNK R NR SEARSBORO, IOWA.	LAT 4132XX, LONG 9242XX, NEAR CENTER OF SEC.27, T.78 N., R.16 W., AT BRIDGE, 3.5 MILES SOUTH OF SEARSBORO.	358	1957-	08-23-71	13
5-4724	MIDDLE CR NR ROSE HILL, IOWA.	LAT 412042, LONG 922825, IN NE 1/4 SEC. 33, T.76 N., R.14 W., AT BRIDGE, 2 MILES NW OF ROSE HILL.	58.5	1957-	08-23-71	.15
5-4724.5	CEDAR CR NR SIGOURNEY, IOWA.	LAT 411842, LONG 921333, IN SE 1/4 SEC. 10, T.75 N., R.12 W., AT BRIDGE, 2 MILES SW OF SIGOURNEY.	92.5	1957-	08-23-71	1.2
5-4730	SKUNK R AT COPPOCK, IOWA.	LAT 4110XX, LONG 9143XX, IN NE 1/4 SEC. 1, T.73 N., R.8 W., AT BRIDGE ON STATE HIGHWAY 78, 0.5 MILE WEST OF COPPOCK.	2916	1913-44, 1957-	08-24-71	156
5-4730.2	EF CROOKED CR NR WINFIELD, IOWA.	LAT 4109XX, LONG 9126XX, IN NE 1/4 SEC. 9, T.73 N., R.5 W., AT BRIDGE, 2 MILES NORTH OF WINFIELD.	65.3	1958-	08-24-71	.96
5-4730.5	CROOKED CR NR COPPOCK, IOWA.	LAT 4112XX, LONG 9142XX, IN NE 1/4 SEC. 30, T.74 N., R.7 W., AT BRIDGE, 2 MILES NE OF COPPOCK.	259	1957-	08-24-71	3.7

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		SKUNK RIVER BASIN--CONTINUED				
5-4731	WALNUT CR AT GERMANVILLE, IOWA.	LAT 4106XX, LONG 9146XX, IN SW 1/4 SEC. 27, T.73 N., R.8 W., AT BRIDGE, 1 MILE WEST OF GERMANVILLE.	66.3	1957-	08-24-71	.12
5-4732	CEDAR CR NR HIGHLAND CENTER, IOWA.	LAT 41D63D, LONG 922158, IN SW 1/4 SEC. 21, T.73 N., R.13 W., AT BRIDGE, 1 MILE SW OF HIGHLAND CENTER.	73.6	1957-	08-25-71	.28
5-4732.5	COMPETINE CR BELOW FORKS NR BATAVIA, IOWA.	LAT 41D2XX, LONG 9207XX, IN NE 1/4 SEC. 21, T.72 N., R.11 W., AT BRIDGE, 3 MILES NE OF BATAVIA.	68.8	1957-	08-25-71	.01
*5-4733	CEDAR CR NR BATAVIA, IOWA.	LAT 41D1XX, LONG 9207XX, IN NW 1/4 SEC. 27, T.72 N., R.11 W., AT BRIDGE ON U.S. HIGHWAY 30, 2.5 MILES NE OF BATAVIA.	252	1957-	08-25-71	.92
5-4733.5	L CEDAR CR NR SALEM, IOWA.	LAT 4051XX, LONG 9141XX, IN SW 1/4 SEC. 17, T.70 N., R.7 W., AT BRIDGE, 4 MILES WEST OF SALEM.	55.0	1958-	08-25-71	0.0
5-4734	CEDAR CR NR OAKLAND MILLS, IOWA.	LAT 4D55XX, LONG 914DXX, IN NW 1/4 SEC. 28, T.71 N., R.7 W., AT BRIDGE, 3 MILES WEST OF OAKLAND MILLS.	522	1958-	08-25-71	8.9
5-4734.5	BIG CR AT MT. PLEASANT, IOWA.	LAT 41D0XX, LONG 9132XX, IN NW 1/4 SEC. 34, T.72 N., R.6 W., AT BRIDGE, 3 MILES NE OF MT. PLEASANT.	58.0	1958-	08-24-71	.03
		DEVILS CREEK BASIN				
5-4741.9	DEVILS CR NR VIELE, IOWA.	LAT 4D3703, LONG 912534, IN SW 1/4 SEC. 10, T.67 N., R.5 W., AT BRIDGE, 1 MILE NE OF VIELE.	20.0	1958-	08-25-71	0.0
5-4742	SUGAR CR NR FRANKLIN, IOWA.	LAT 4D3954, LONG 912839, IN NE 1/4 SEC. 30, T.68 N., R.5 W., AT BRIDGE, 2 MILES EAST OF FRANKLIN.	75.6	1958-	08-25-71	.01
5-4743	SUGAR CR NR VIELE, IOWA.	LAT 4D3639, LONG 912624, IN SE 1/4 SEC. 9, T.67 N., R.5 W., AT BRIDGE, 0.5 MILE WEST OF VIELE.	109	1958-	08-25-71	.21
		DES MOINES RIVER BASIN				
5-4765.5	JACK CR NR RINGSTED, IOWA.	LAT 4316XX, LONG 9438XX, NEAR S 1/4 CORNER OF SEC.28, T.98 N., R.32 W., AT BRIDGE, 6 MILES SW OF RINGSTED.	74.8	1957-	08-24-71	.15
5-4766	SILVER CR NR EMMETTSBURG, IOWA.	LAT 43D6XX, LONG 9443XX, NEAR N 1/4 CORNER SEC.34, T.96 N., R.33 W., AT BRIDGE, 3 MILES SW OF EMMETTSBURG.	61.8	1957-	08-25-71	3.6
5-4766.5	CYLINDER CR NR RODMAN, IOWA.	LAT 43D2XX, LONG 9434XX, NEAR S 1/4 CORNER SEC.13, T.95 N., R.32 W., AT BRIDGE, 2.5 MILES NW OF RODMAN.	88.6	1957-	08-24-71	2.8
5-4767	PRAIRIE CR NR WEST BEND, IOWA.	LAT 4255XX, LONG 9427XX, NEAR N 1/4 CORNER SEC.36, T.94 N., R.31 W., AT BRIDGE, 2.5 MILES SW OF WEST BEND.	61.1	1957-	08-24-71	.18
5-4767.2	BEAVER CR NR ROLFE, IOWA.	LAT 4250XX, LONG 9428XX, NEAR CENTER OF SEC.35, T.93 N., R.31 W., AT BRIDGE, 3 MILES NE OF ROLFE.	62.2	1959-	08-24-71	2.4
5-4767.4	PILOT CR NR ROLFE, IOWA.	LAT 4249XX, LONG 9427XX, IN SE 1/4 SEC. 1, T.92 N., R.31 W., AT BRIDGE, 4 MILES EAST OF ROLFE.	97.0	1959-	08-24-71	4.9
5-4776	EF DES MOINES R NR DOLLIVER, IOWA.	LAT 4328XX, LONG 9435XX, IN SW 1/4 SEC. 13, T.100 N., R.32 W., AT BRIDGE, 2 MILES NE OF DOLLIVER.	196	1957-	08-24-71	0.0
5-4777	EF DES MOINES R NR SWEA CITY, IOWA.	LAT 4319XX, LONG 9425XX, NEAR CENTER OF SEC.8, T.98 N., R.30 W., AT BRIDGE, 7 MILES SW OF SWEA CITY.	314	1957-	08-24-71	0.0

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED				
5-4778	MUD CR AT BANCROFT, IOWA.	LAT 4318XX, LONG 9412XX, NEAR CENTER OF SEC.19, T.98 N., R.28 W., AT BRIDGE, 1 MILE EAST OF BANCROFT.	68.1	1957-	08-23-71	.66
5-4780.5	BUFFALO CR NR TITONKA, IOWA.	LAT 4314XX, LONG 9359XX, IN NW 1/4 SEC. 12, T.97 N., R.27 W., AT BRIDGE, 3 MILES EAST OF TITONKA.	47.9	1957-	08-23-71	0.0
5-4781	N BUFFALO CR NR BUFFALO CENTER, IOWA.	LAT 4319XX, LONG 9358XX, IN NW 1/4 SEC. 18, T.98 N., R.26 W., AT BRIDGE, 5 MILES SOUTH OF BUFFALO CENTER.	62.5	1957-	08-23-71	.61
5-4781.5	BLACK CAT CR NR LONE ROCK, IOWA.	LAT 4312XX, LONG 942DXX, NEAR S 1/4 CORNER SEC.24, T.97 N., R.30 W., AT BRIDGE, 2 MILES SW OF LONE ROCK.	58.2	1957-	08-23-71	.10
5-4782	BLACK CAT CR NR ALGONA, IOWA.	LAT 43D8XX, LONG 9414XX, NEAR S 1/4 CORNER SEC.11, T.96 N., R.29 W., AT BRIDGE ON U. S. HIGHWAY 169, 5 MILES NORTH OF ALGONA.	112	1957-	08-23-71	.02
5-4783.5	LOTTS CR NR WEST BEND, IOWA.	LAT 4358XX, LONG 9423XX, NEAR S 1/4 CORNER SEC.9, T.94 N., R.30 W., AT BRIDGE, 3 MILES EAST OF WEST BEND.	66.2	1957-	08-26-71	2.1
5-4784	LOTTS CR AT LIVERMORE, IOWA.	LAT 4252XX, LONG 9411XX, IN NE 1/4 SEC. 18, T.93 N., R.28 W., AT BRIDGE NEAR NW CITY LIMITS OF LIVERMORE.	165	1957-	08-23-71	5.3
5-4796	LIZARD CR NR PALMER, IOWA	LAT 4239XX, LONG 9430XX, IN NW 1/4 SEC. 3, T.9D N., R.31 W., AT BRIDGE, 5 MILES NE OF PALMER.	66.4	1957-	D8-24-71	1.0
5-4798	N8 LIZARD CR NR HAVELOCK, IOWA.	LAT 4248XX, LONG 944DXX, IN NE 1/4 SEC. 18, T.92 N., R.32 W., AT BRIDGE, 4 MILES SE OF HAVELOCK.	79.4	1957-	D8-24-71	1.1
5-4799	LIZARD CR NR GILMORE CITY, IOWA.	LAT 4238XX, LONG 9428XX, IN NW 1/4 SEC. 1, T.9D N., R.31 W., AT BRIDGE, 6 MILES SW OF GILMORE CITY.	219	1957-	D8-24-71	4.0
5-4801	S8 LIZARD CR NR PALMER, IOWA.	LAT 4235XX, LONG 9432XX, IN SW 1/4 SEC. 29, T.90 N., R.31 W., AT BRIDGE, 4.5 MILES SE OF PALMER.	66.4	1957-	08-24-71	.D6
5-48D3	S8 LIZARD CR NR FORT DODGE, IOWA.	LAT 422950, LONG 941359, IN NE 1/4 SEC. 26, T.89 N., R.29 W., AT BRIDGE, 3 MILES WEST OF FORT DODGE.	154	1957-	08-24-71	.14
5-48D6.2	BRUSHY CR NR HOMER, IOWA.	LAT 4223XX, LONG 9359XX, IN SE 1/4 SEC. 34, T.88 N., R.27 W., AT BRIDGE, 3 MILES NW OF HOMER.	88.5	1957-	D8-23-71	1.D
5-4806.6	BOONE R NR KANAWHA, IOWA.	LAT 4255XX, LONG 9353XX, NEAR NORTH 1/4 CORNER SEC.35, T.94 N., R.26 W., AT BRIDGE, 4 MILES SW OF KANAWHA.	71.4	1957-	08-23-71	1.3
5-48D7	BOONE R NR RENWICK, IOWA.	LAT 4253XX, LONG 9355XX, IN SW 1/4 SEC. 3, T.93 N., R.26 W., AT BRIDGE, 6 MILES NE OF RENWICK.	134	1957-	D8-23-71	2.5
5-48D7.2	PRAIRIE CR NR LUVERNE, IOWA.	LAT 4257XX, LONG 94D5XX, IN SW 1/4 SEC. 18, T.94 N., R.27 W., AT BRIDGE, 3 MILES NORTH OF LUVERNE.	68.6	1957-	D8-23-71	2.4
5-4807.6	PRAIRIE CR NR RENWICK, IOWA.	LAT 4252XX, LONG 9359XX, IN NE 1/4 SEC. 23, T.93 N., R.27 W., AT BRIDGE, 3 MILES NW OF RENWICK.	118	1957-	D8-23-71	2.5
5-4808	OTTER CR NR GOLDFIELD, IOWA.	LAT 4247XX, LONG 9353XX, IN NE 1/4 SEC. 15, T.92 N., R.26 W., AT BRIDGE, 4 MILES NE OF GOLDFIELD.	75.5	1957-	D8-23-71	1.5

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED				
5-4808.2	BOONE R NR GOLDFIELD, IOWA.	LAT 4243XX, LONG 9357XX, NEAR CENTER OF SEC.5, T.91 N., R.26 W., AT BRIDGE, 1.5 MILES SW OF GOLDFIELD.	419	1957-	08-23-71	11
5-4808.6	EAGLE CR NR EAGLE GROVE, IOWA.	LAT 4242XX, LONG 9349XX, IN SE 1/4 SEC. 8, T.91 N., R.25 W., AT BRIDGE, 5 MILES NE OF EAGLE GROVE.	62.8	1957-	08-23-71	1.5
5-4809	EAGLE CR NR WOOLSTOCK, IOWA.	LAT 4234XX, LONG 9351XX, NEAR CENTER OF SEC.36, T.90 N., R.26 W., AT BRIDGE, 0.5 MILE WEST OF WOOLSTOCK.	105	1957-	08-23-71	3.9
5-4809.4	WHITE FOX CR NR WOOLSTOCK, IOWA.	LAT 4236XX, LONG 9345XX, IN SW 1/4 SEC. 13, T.90 N., R.25 W., AT BRIDGE, 5 MILES NE OF WOOLSTOCK.	62.0	1957-	08-23-71	3.1
5-4809.8	WHITE FOX CR AT WEBSTER CITY, IOWA.	LAT 4230XX, LONG 9348XX, IN NW 1/4 SEC. 28, T.89 N., R.25 W., AT BRIDGE, 2 MILES NORTH OF WEBSTER CITY.	111	1957-	08-23-71	3.7
5-4816	BIG CR AT POLK CITY, IOWA.	LAT 4146XX, LONG 9342XX, IN SE 1/4 SEC. 1, T.80 N., R.25 W., AT BRIDGE, 1 MILE SE OF POLK CITY.	91.4	1957-	08-23-71	.11
5-4817	BEAVER CR NR BEAVER, IOWA.	LAT 4202XX, LONG 9409XX, NEAR S 1/4 CORNER SEC.6, T.83 N., R.28 W., AT BRIDGE, 1 MILE SW OF BEAVER.	84.5	1957-	08-24-71	0.0
5-4818	BEAVER CR NR BERKLEY, IOWA.	LAT 4155XX, LONG 9406XX, IN NW 1/4 SEC. 15, T.82 N., R.28 W., AT BRIDGE, 2 MILES SOUTH OF BERKLEY.	175	1957-	08-24-71	0.0
5-4819	BEAVER CR AT GRANGER, IOWA.	LAT 414539, LONG 935101, IN SW 1/4 SEC. 2, T.80 N., R.26 W., AT BRIDGE, 1.5 MILES WEST OF GRANGER.	314	1957-	08-24-71	.61
5-4821	N RACCOON R NR REMBRANDT, IOWA.	LAT 4247XX, LONG 9506XX, IN NE 1/4 SEC. 21, T.92 N., R.36 W., AT BRIDGE, 5 MILES SE OF REMBRANDT.	77.4	1957-	08-03-71	5.9
5-4821.2	N RACCOON R NR TRUESDALE, IOWA.	LAT 4242XX, LONG 9505XX, IN NE 1/4 SEC. 15, T.91 N., R.36 W., AT BRIDGE, 6 MILES SE OF TRUESDALE.	164	1957-	08-03-71	11
5-4821.8	L CEDAR CR NR EONDA, IOWA.	LAT 4237XX, LONG 9451XX, IN NW 1/4 SEC. 15, T.90 N., R.34 W., AT BRIDGE, 2 MILES NORTH OF EONDA.	83.5	1957-	08-04-71	3.8
5-4822	R CEDAR CR AT EONDA, IOWA.	LAT 4235XX, LONG 9451XX, IN SW 1/4 SEC. 22, T.90 N., R.34 W., AT BRIDGE ON STATE HIGHWAY 5, AT NORTH CITY LIMITS OF EONDA.	196	1957-	08-24-71	7.4
5-4822.2	R CEDAR CR AT SAC CITY, IOWA.	LAT 4224XX, LONG 9459XX, IN SE 1/4 SEC. 25, T.88 N., R.36 W., AT BRIDGE, 1 MILE SE OF SAC CITY.	342	1957-	08-04-71	12
5-4823.2	INDIAN CR NR LAKE VIEW, IOWA.	LAT 4220XX, LONG 9500XX, IN NW 1/4 SEC. 24, T.87 N., R.36 W., AT BRIDGE, 4 MILES NE OF LAKE VIEW.	90.2	1957-	08-03-71	1.2
5-4823.6	CAMP CR NR LYTTON, IOWA.	LAT 4223XX, LONG 9450XX, IN NW 1/4 SEC. 5, T.87 N., R.34 W., AT BRIDGE, 3 MILES SE OF LYTTON.	62.0	1957-	08-23-71	.22
5-4823.8	CAMP CR NR LAKE CITY, IOWA.	LAT 4217XX, LONG 9450XX, IN NW 1/4 SEC. 5, T.86 N., R.34 W., AT BRIDGE, 5 MILES NW OF LAKE CITY.	147	1957-	08-03-71	1.2
5-4824	N RACCOON R NR LAKE CITY, IOWA.	LAT 4216XX, LONG 9450XX, NEAR E 1/4 CORNER SEC.17, T.86 N., R.34 W., AT BRIDGE ON STATE HIGHWAY 175, 4 MILES WEST OF LAKE CITY.	1003	1957-	08-03-71	57

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED				
5-4824.1	LAKE CR NR ROCKWELL CITY, IOWA.	LAT 4224XX, LONG 9436XX, IN SW 1/4 SEC. 29, T.88 N., R.32 W., AT BRIDGE ON U. S. HIGHWAY 20, 1 MILE EAST OF ROCKWELL CITY.	71.5	1957-	08-04-71	.80
5-4824.2	LAKE CR NR LAKE CITY, IOWA.	LAT 4216XX, LONG 9447XX, IN SW 1/4 SEC. 14, T.86 N., R.34 W., AT BRIDGE, 3 MILES WEST OF LAKE CITY.	128	1957-	08-02-71	1.7
5-4824.4	PURGATORY CR NR LANESBORO, IOWA.	LAT 4210XX, LONG 9438XX, IN NE 1/4 SEC. 24, T.85 N., R.33 W., AT BRIDGE, 3 MILES SE OF LANESBORO.	65.0	1957-	08-02-71	.44
5-4824.6	E CEDAR CR NR SOMERS, IOWA.	LAT 422207, LONG 942703, IN NW 1/4 SEC. 10, T.87 N., R.31 W., AT BRIDGE, 1 MILE SW OF SOMERS.	62.4	1957-	08-04-71	4.7
5-4824.8	CEDAR CR NR CHURDAN, IOWA.	LAT 4208XX, LONG 9435XX, NEAR S 1/4 CORNER SEC.28, T.85 N., R.32 W., AT BRIDGE, 5 MILES SW OF CHURDAN.	151	1957-	08-02-71	.71
5-4827	HARDIN CR NR CHURDAN, IOWA.	LAT 4210XX, LONG 9426XX, IN SW 1/4 SEC. 14, T.85 N., R.31 W., AT BRIDGE, 2 MILES EAST OF CHURDAN.	74.0	1957-	08-02-71	.43
5-4830.5	HARDIN CR NR JEFFERSON, IOWA.	LAT 4201XX, LONG 9420XX, IN NW 1/4 SEC. 10, T.83 N., R.30 W., AT BRIDGE, 2 MILES EAST OF JEFFERSON.	161	1957-	08-02-71	.46
5-4831	W BUTTRICK CR NR FARNHAMVILLE, IOWA.	LAT 4213XX, LONG 9422XX, IN NW 1/4 SEC. 4, T.85 N., R.30 W., AT BRIDGE, 5 MILES SE OF FARNHAMVILLE.	80.1	1957-	08-02-71	.35
5-4831.5	E BUTTRICK CR NR GRAND JUNCTION, IOWA.	LAT 4204XX, LONG 9416XX, IN NE 1/4 SEC. 30, T.84 N., R.29 W., AT BRIDGE, 2.5 MILES NW OF GRAND JUNCTION.	79.6	1957-	08-02-71	.25
5-4832	BUTTRICK CR NR GRAND JUNCTION, IOWA.	LAT 4202XX, LONG 9417XX, AT S 1/4 CORNER SEC.36, T.84 N., R.30 W., AT BRIDGE, 2.5 MILES WEST OF GRAND JUNCTION.	202	1957-	08-02-71	.45
5-4832.5	GREEN BRIER CR NR JAMAICA, IOWA.	LAT 4151XX, LONG 9417XX, NEAR CENTER OF SEC.1, T.81 N., R.30 W., AT BRIDGE, 1.5 MILES NE OF JAMAICA.	65.8	1957-	08-02-71	1.0
5-4833	N RACCOON R NR PERRY, IOWA.	LAT 4150XX, LONG 9408XX, NEAR CENTER OF SEC.8, T.81 N., R.28 W., AT BRIDGE ON STATE HIGHWAY 141, 1 MILE WEST OF PERRY.	2169	1957-	08-02-71	132
5-4833.1	S RACCOON R NR GUTHRIE CENTER, IOWA.	LAT 4141XX, LONG 9432XX, IN SW 1/4 SEC. 36, T.80 N., R.32 W., AT BRIDGE, 2 MILES NW OF GUTHRIE CENTER.	77.2	1957-	08-03-71	11
5-4833.2	BRUSHY FORK CR NR DEDHAM, IOWA.	LAT 4147XX, LONG 9454XX, IN SE 1/4 SEC. 22, T.82 N., R.34 W., AT BRIDGE, 2 MILES SE OF DEDHAM.	68.1	1957-	08-02-71	5.4
5-4833.3	BRUSHY FORK CR NR GUTHRIE CENTER, IOWA.	LAT 4139XX, LONG 9427XX, NEAR CENTER OF SEC.15, T.79 N., R.31 W., AT BRIDGE, 3.5 MILES SE OF GUTHRIE CENTER.	142	1957-	08-03-71	21
5-4833.4	S RACCOON R NR MONTEITH, IOWA.	LAT 4138XX, LONG 9425XX, IN SE 1/4 SEC. 23, T.79 N., R.31 W., AT BRIDGE, 0.5 MILE EAST OF MONTEITH.	267	1957-	08-03-71	41
5-4833.5	M RACCOON R NR CARROLL, IOWA.	LAT 4203XX, LONG 9449XX, IN SE 1/4 SEC. 29, T.84 N., R.34 W., AT BRIDGE, 2 MILES SE OF CARROLL.	74.3	1957-	08-02-71	3.1
5-4833.6	M RACCOON R NR GLIDDEN, IOWA.	LAT 4203XX, LONG 9446XX, NEAR CENTER OF SEC.35, T.84 N., R.34 W., AT BRIDGE, 2.5 MILES SW OF GLIDDEN.	138	1957-	08-02-71	4.0

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED				
5-4833.8	WILLOW CR NR SCRANTON, IOWA.	LAT 4154XX, LONG 9435XX, IN SW 1/4 SEC. 21, T.82 N., R.32 W., AT BRIDGE, 9 MILES SW OF SCRANTON.	51.8	1957-	08-02-71	.83
5-4834	WILLOW CR NR BAYARD, IOWA.	LAT 4149XX, LONG 9433XX, IN SE 1/4 SEC. 15, T.81 N., R.32 W., AT BRIDGE, 2 MILES SOUTH OF BAYARD.	112	1957-	08-02-71	2.6
5-4834.5	M RACCOON R NR BAYARD, IOWA.	LAT 4147XX, LONG 9430XX, IN SE 1/4 SEC. 31, T.81 N., R.31 W., AT BRIDGE ON STATE HIGHWAY 25, 6 MILES SE OF BAYARD.	375	1957-	08-02-71 09-22-71	22 10
5-4836.2	MOSQUITO CR NR LINDEN, IOWA.	LAT 4143XX, LONG 9415XX, NEAR S 1/4 CORNER SEC.20, T.80 N., R.29 W., AT BRIDGE, 5 MILES NE OF LINDEN.	67.4	1957-	08-02-71	.78
5-4836.4	MOSQUITO CR NR REDFIELD, IOWA.	LAT 4138XX, LONG 9413XX, IN NE 1/4 SEC. 27, T.79 N., R.29 W., AT BRIDGE, 3 MILES NORTH OF REDFIELD.	110	1957-	08-03-71	2.5
5-4836.6	M RACCOON R AT REDFIELD, IOWA.	LAT 4136XX, LONG 9413XX, NEAR W 1/4 CORNER SEC.4, T.78 N., R.29 W., AT BRIDGE NEAR WEST CITY LIMITS OF REDFIELD.	609	1957-	08-03-71	30
5-4842	PANTHER CR NR ADEL, IOWA.	LAT 4136XX, LONG 9406XX, NEAR N 1/4 CORNER SEC.5, T.78 N., R.28 W., AT BRIDGE, 4 MILES SW OF ADEL.	56.0	1957-	08-03-71	8.3
5-4847	WALNUT CR AT WEST DES MOINES, IOWA.	LAT 413600, LONG 934307, IN SE 1/4 SEC. 35, T.79 N., R.25 W., AT BRIDGE IN WEST DES MOINES.	64.0	[a] 1957-71,	08-03-71	11
5-4856	FOURMILE CR NR ANKENY, IOWA.	LAT 414354, LONG 933421, NEAR S 1/4 CORNER SEC.18, T.80 N., R.23 W., AT BRIDGE, 1.5 MILES EAST OF ANKENY.	59.3	1957-	08-23-71	0.0
5-4856.5	FOURMILE CR AT DES MOINES, IOWA.	LAT 413603, LONG 933147, IN NE 1/4 SEC. 5, T.78 N., R.23 W., AT BRIDGE ON STATE HIGHWAY 163, AT EAST CITY LIMITS OF DES MOINES.	95.9	[b] 1957-71,	08-04-71	.34
5-4857	NORTH R NR EARLHAM, IOWA.	LAT 4124XX, LONG 9411XX, IN NE 1/4 SEC. 9, T.76 N., R.29 W., AT BRIDGE, 7 MILES SW OF EARLHAM.	68.9	1957-	08-24-71	.67
5-4858.5	NB NORTH R NR WINTERSET, IOWA.	LAT 4126XX, LONG 9356XX, IN NE 1/4 SEC. 34, T.77 N., R.27 W., AT BRIDGE, 7 MILES NE OF WINTERSET.	74.7	1957-	08-24-71	.47
5-4859	NORTH R NR WINTERSET, IOWA.	LAT 4126XX, LONG 9355XX, IN NW 1/4 SEC. 36, T.77 N., R.27 W., AT BRIDGE, 8 MILES NE OF WINTERSET.	203	1957-	08-24-71	1.1
5-4861	MIDDLE R NR CASEY, IOWA.	LAT 4130XX, LONG 9429XX, IN SW 1/4 SEC. 36, T.78 N., R.32 W., AT BRIDGE, 1.5 MILES EAST OF CASEY.	72.8	1957-	08-24-71	1.1
5-4861.5	MIDDLE R AT MIDDLE RIVER, IOWA.	LAT 4120XX, LONG 9414XX, NEAR CENTER OF SEC.6, T.75 N., R.29 W., AT BRIDGE NEAR SOUTH CITY LIMITS OF MIDDLE RIVER.	164	1957-	08-24-71	4.4
5-4863	CLANTON CR AT EAST PERU, IOWA.	LAT 4114XX, LONG 9355XX, IN NE 1/4 SEC. 11, T.74 N., R.27 W., AT BRIDGE, NEAR EAST CITY LIMITS OF EAST PERU.	84.5	1957-	08-23-71	.02
5-4863.5	CLANTON CR NR MARTENSDALE, IOWA.	LAT 4121XX, LONG 9345XX, IN NE 1/4 SEC. 32, T.76 N., R.25 W., AT BRIDGE, 2 MILES SW OF MARTENSDALE.	159	1957-	08-24-71	.99
5-4864	MIDDLE R AT MARTENSDALE, IOWA.	LAT 4122XX, LONG 9344XX, IN SE 1/4 SEC. 21, T.76 N., R.25 W., AT BRIDGE ON STATE HIGHWAY 92, 0.5 MILE SE OF MARTENSDALE.	451	1957-	08-24-71	8.7

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED				
5-4867	SOUTH R NR NEW VIRGINIA, IOWA.	LAT 4113XX, LONG 9344XX, IN NE 1/4 SEC. 16, T.74 N., R.25 W., AT BRIDGE, 2.5 MILES NORTH OF NEW VIRGINIA.	65.4	1957-	08-23-71	0.0
5-4869	SQUAW CR NR JAMISON, IOWA.	LAT 4108XX, LONG 9344XX, IN NE 1/4 SEC. 16, T.73 N., R.25 W., AT BRIDGE, 0.5 MILE NW OF JAMISON.	60.8	1957-	08-23-71	0.0
5-4871	SQUAW CR NR INDIANOLA, IOWA.	LAT 4118XX, LONG 9336XX, IN NE 1/4 SEC. 15, T.75 N., R.24 W., AT BRIDGE, 4 MILES SW OF INDIANOLA.	134	1957-	08-24-71	.40
5-4872	SOUTH R NR INDIANOLA, IOWA.	LAT 4120XX, LONG 9335XX, IN NE 1/4 SEC. 2, T.75 N., R.24 W., AT BRIDGE, 2 MILES SW OF INDIANOLA.	278	1957-	08-24-71	2.4
5-4874	OTTER CR NR NORWOOD, IOWA.	LAT 4109XX, LONG 9332XX, IN SW 1/4 SEC. 5, T.73 N., R.23 W., AT BRIDGE, 3 MILES NW OF NORWOOD.	102	1957-	08-23-71	0.0
5-4874.5	OTTER CR NR MILO, IOWA.	LAT 411702, LONG 932909, IN NE 1/4 SEC. 22, T.75 N., R.23 W., AT BRIDGE ON STATE HIGHWAY 205, 2 MILES WEST OF MILO.	155	1957-	08-24-71	2.9
5-4877	WHITE BREAST CR NR WOODBURN, IOWA.	LAT 405836, LONG 933514, IN SE 1/4 SEC. 2, T.71 N., R.24 W., AT BRIDGE, 2 MILES SOUTH OF WOODBURN.	82.9	1957-	08-24-71	0.0
*5-4878	WHITE BREAST CR AT LUCAS, IOWA.	LAT 4101XX, LONG 9328XX, IN NE 1/4 SEC. 23, T.72 N., R.23 W., AT BRIDGE ON U.S. HIGHWAY 65, NEAR SOUTH CITY LIMITS OF LUCAS.	128	1957-	08-24-71	.01
5-4879	WHITE BREAST CR NR NEWBERN, IOWA.	LAT 4110XX, LONG 9321XX, IN SE 1/4 SEC. 35, T.74 N., R.22 W., AT BRIDGE, 2 MILES WEST OF NEWBERN.	243	1957-	08-23-71	.13
5-4882	ENGLISH CR NR KNOXVILLE, IOWA.	LAT 411615, LONG 930526, NEAR CENTER OF SEC.30, T.75 N., R.19 W., AT BRIDGE, 3 MILES SOUTH OF KNOXVILLE.	73.0	1957-	08-23-71	0.0
5-4883	ENGLISH CR NR HARVEY, IOWA.	LAT 4120XX, LONG 9257XX, NEAR E 1/4 CORNER SEC.5, T.75 N., R.18 W., AT BRIDGE, 1.5 MILES NW OF HARVEY.	108	1957-	08-23-71	.03
5-4885.5	CEDAR CR AT MELROSE, IOWA.	LAT 4058XX, LONG 9303XX, IN SW 1/4 SEC. 4, T.71 N., R.19 W., AT BRIDGE NEAR SOUTH CITY LIMITS OF MELROSE.	23.9	1957-	08-23-71	.02
5-4886	CEDAR CR NR ALBIA, IOWA.	LAT 4101XX, LONG 9253XX, IN NE 1/4 SEC. 26, T.72 N., R.18 W., AT BRIDGE ON U. S. HIGHWAY 34, 4 MILES WEST OF ALBIA.	102	1958-	08-23-71	.18
5-4887	CEDAR CR NR LOVILIA, IOWA.	LAT 4107XX, LONG 9256XX, NEAR S 1/4 CORNER SEC.16, T.73 N., R.18 W., AT BRIDGE, 2 MILES SW OF LOVILIA.	211	1957-	08-23-71	.30
5-4888	N CEDAR CR NR LOVILIA, IOWA.	LAT 4109XX, LONG 9303XX, IN NE 1/4 SEC. 4, T.73 N., R.19 W., AT BRIDGE, 7.5 MILES NW OF LOVILIA.	61.3	1957-	08-23-71	0.0
5-4889	N CEDAR CR NR MARYSVILLE, IOWA.	LAT 4111XX, LONG 9301XX, IN SE 1/4 SEC. 26, T.74 N., R.19 W., AT BRIDGE, 3 MILES WEST OF MARYSVILLE.	111	1958-	08-23-71	.00
5-4893	N AVERY CR NR CHILLICOTHE, IOWA.	LAT 4106XX, LONG 9233XX, IN SE 1/4 SEC. 26, T.73 N., R.15 W., AT BRIDGE, 1 MILE NW OF CHILLICOTHE.	60.1	1957-	08-25-71	.04
5-4894	S AVERY CR AT CHILLICOTHE, IOWA.	LAT 4105XX, LONG 9232XX, AT E 1/4 CORNER SEC.36, T.73 N., R.15 W., AT BRIDGE, NEAR SOUTH CITY LIMITS OF CHILLICOTHE.	51.6	1957-	08-25-71	.00

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED				
5-4899	SOAP CR NR ASH GROVE, IOWA.	LAT 4051XX, LONG 9236XX, IN SW 1/4 SEC. 21, T.70 N., R.15 W., AT BRIDGE, 3 MILES SW OF ASH GROVE.	97.3	1958-	08-25-71	.04
5-4901	SOAP CR NR FLORIS, IOWA.	LAT 405337, LONG 921553, NEAR CENTER OF SEC.5, T.70 N., R.12 W., AT BRIDGE, 4 MILES NE OF FLORIS.	243	1958-	08-25-71	4.7
5-4902	LICK CR AT KILBOURN, IOWA.	LAT 4048XX, LONG 9158XX, IN SW 1/4 SEC. 1, T.69 N., R.10 W., AT BRIDGE NEAR EAST CITY LIMITS OF KILBOURN.	82.7	1958-	08-25-71	0.0
5-4903	CHEQUEST CR NR TROY, IOWA.	LAT 404717, LONG 921101, IN SE 1/4 SEC. 12, T.69 N., R.12 W., AT BRIDGE, 3 MILES NE OF TROY.	85.0	1958-	08-25-71	.84
5-4904	CHEQUEST CR NR PITTSBURG, IOWA.	LAT 404541, LONG 920057, NEAR CENTER OF SEC.21, T.69 N., R.10 W., AT BRIDGE, 1.5 MILES NW OF PITTSBURG.	123	1958-	08-24-71	.03
5-4907	SUGAR CR NR CHARLESTON, IOWA.	LAT 4034XX, LONG 9134XX, IN NW 1/4 SEC. 33, T.67 N., R.6 W., AT BRIDGE, 2 MILES SW OF CHARLESTON.	62.3	1958-	08-25-71	.02
		FOX RIVER BASIN				
5-4945	FOX R AT CANTRIL, IOWA.	LAT 4039XX, LONG 9203XX, IN SW 1/4 SEC. 30, T.68 N., R.10 W., AT BRIDGE ON STATE HIGHWAY 2, 1 MILE NE OF CANTRIL	161	+1941-51. 1958-	08-25-71	6.2
		BIG SIOUX RIVER BASIN				
6-4831	ROCK R NR ROCK RAPIDS, IOWA.	LAT 433001, LONG 961103, IN NE 1/4 SEC. 8, T.100 N., R.45 W., AT BRIDGE, 5 MILES NORTH OF ROCK RAPIDS.	558	1958-	09-01-71	11
6-4832.6	KANARANZI CR NR ROCK RAPIDS, IOWA.	LAT 4328XX, LONG 9609XX, IN SW 1/4 SEC. 22, T.100 N., R.45 W., AT BRIDGE, 2 MILES NORTH OF ROCK RAPIDS.	203	1958-	09-01-71	3.5
6-4832.8	TOM CR AT ROCK RAPIDS, IOWA.	LAT 4326XX, LONG 96D9XX, IN SW 1/4 SEC. 34, T.100 N., R.45 W., AT BRIDGE IN NE CORNER OF ROCK RAPIDS.	61.9	1958-	09-01-71	.06
6-4833	ROCK R BELOW ROCK RAPIDS, IOWA.	LAT 4324XX, LONG 9609XX, NEAR N 1/4 CORNER SEC.15, T.99 N., R.45 W., AT BRIDGE, 2 MILES SOUTH OF ROCK RAPIDS.	859	1958-	09-01-71	16
6-4833.2	MUD CR AT LESTER, IOWA.	LAT 4327XX, LONG 9620XX, IN NW 1/4 SEC. 36, T.100 N., R.47 W., AT BRIDGE NEAR NW CITY LIMITS OF LESTER.	63.7	1958-	09-01-71	0
6-4833.3	MUD CR NR DOON, IOWA.	LAT 4317XX, LONG 9615XX, IN NE 1/4 SEC. 27, T.98 N., R.46 W., AT BRIDGE, 1.5 MILES NW OF DOON.	138	1958-	09-01-71	.77
6-4833.4	ROCK R NR DOON, IOWA.	LAT 4316XX, LONG 9615XX, IN NW 1/4 SEC. 35, T.98 N., R.46 W., AT BRIDGE, 1 MILE SW OF DOON.	1050	1958-	09-01-71	22
6-4833.6	L ROCK R NR LITTLE ROCK, IOWA.	LAT 433000, LONG 955057, IN N 1/2 SEC. 7, T.100 N., R.42 W., AT BRIDGE, 4 MILES NE OF LITTLE ROCK.	92.0	1958-	09-01-71	.11
6-4833.8	L ROCK R AT LITTLE ROCK, IOWA.	LAT 4326XX, LONG 9554XX, IN NE 1/4 SEC. 3, T.99 N., R.43 W., AT BRIDGE, 1 MILE SW OF LITTLE ROCK.	134	1958-	09-01-71	1.1
6-4834	L ROCK R NR GEORGE, IOWA.	LAT 4319XX, LONG 9602XX, IN NE 1/4 SEC. 15, T.98 N., R.44 W., AT BRIDGE, 2 MILES SW OF GEORGE.	199	1958-	09-01-71	3.1
*6-4834.6	OTTER CR NR ASHTON, IOWA.	LAT 4320XX, LONG 9546XX, IN SE 1/4 SEC. 2, T.98 N., R.42 W., AT BRIDGE, 2 MILES NE OF ASHTON.	88.0	1958-	09-01-71	1.3

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		BIG SIOUX RIVER BASIN--CONTINUED				
6-4834.7	OTTER CR NR MATLOCK, IOWA.	LAT 431622, LONG 955500, NEAR W 1/4 CORNER SEC.34, T.98 N., R.43 W., AT BRIDGE, 2 MILES NE OF MATLOCK.	129	1958-	09-01-71	2.0
6-4834.8	OTTER CR NR GEORGE, IOWA.	LAT 431722, LONG 960300, IN NW 1/4 SEC. 28, T.98 N., R.44 W., AT BRIDGE, 5 MILES SW OF GEORGE.	208	1958-	09-01-71	3.6
6-4834.9	L ROCK R NR ODON, IOWA.	LAT 431600, LONG 961400, NEAR W 1/4 CORNER SEC.36, T.98 N., R.46 W., AT BRIDGE, 1 MILE SOUTH OF ODON.	474	1958-	09-01-71	9.3
6-4841	SIXMILE CR NR HAWARDEN, IOWA.	LAT 430200, LONG 962400, IN NW 1/4 SEC. 28, T.95 N., R.47 W., AT BRIDGE, 5 MILES NE OF HAWARDEN.	68.8	1958-	09-01-71	2.2
6-4841.5	SIXMILE CR NR CHATSWORTH, IOWA.	LAT 425600, LONG 962900, IN SW 1/4 SEC. 26, T.94 N., R.48 W., AT BRIDGE, 1.5 MILES NE OF CHATSWORTH.	104	1958-	09-01-71	5.0
6-4842	INDIAN CR NR CHATSWORTH, IOWA.	LAT 425300, LONG 963000, IN NW 1/4 SEC. 10, T.93 N., R.48 W., AT BRIDGE, 1.5 MILES SOUTH OF CHATSWORTH.	62.2	1958-	09-01-71	3.6
6-4858	BROKEN KETTLE CR NR ADAVILLE, IOWA.	LAT 424320, LONG 962808, IN SE 1/4 SEC. 2, T.91 N., R.48 W., AT BRIDGE, 4 MILES SW OF ADAVILLE.	60.7	1958-	09-02-71	3.2
6-4859	BROKEN KETTLE CR NR SIOUX CITY, IOWA.	LAT 423816, LONG 963028, IN SW 1/4 SEC. 3, T.90 N., R.48 W., AT BRIDGE, 9 MILES NW OF SIOUX CITY.	97.4	1958-	09-02-71	4.7
		FLOYD RIVER BASIN				
6-6000.2	FLOYD R NR SHELDON, IOWA.	LAT 431219, LONG 954922, IN SW 1/4 SEC. 21, T.97 N., R.42 W., AT BRIDGE, 2 MILES NE OF SHELDON.	64.0	1958-	09-02-71	1.2
6-6000.4	L FLOYD R NR SHELDON, IOWA.	LAT 430925, LONG 955202, IN SE 1/4 SEC. 1, T.96 N., R.43 W., AT BRIDGE, 2 MILES SW OF SHELDON.	59.3	1958-	09-02-71	.48
6-6000.6	FLOYD R BELOW SHELDON, IOWA.	LAT 430738, LONG 955327, IN N 1/2 SEC. 23, T.96 N., R.43 W., AT BRIDGE, 4 MILES SW OF SHELDON.	165	1958-	09-02-71	.73
6-6001.2	DEER CR NR OYENS, IOWA.	LAT 424926, LONG 960653, IN SW 1/4 SEC. 36, T.93 N., R.45 W., AT BRIDGE, 3 MILES NW OF OYENS.	82.7	1957-	09-02-71	3.0
6-6001.4	WILLOW CR NR OYENS, IOWA.	LAT 424942, LONG 960654, NEAR W 1/4 CORNER SEC.36, T.93 N., R.45 W., AT BRIDGE, 3 MILES NW OF OYENS.	65.2	1957-	09-02-71	.78
6-6001.6	DEER CR AT LE MARS, IOWA.	LAT 424815, LONG 960929, IN NE 1/4 SEC. 9, T.92 N., R.45 W., AT BRIDGE NEAR NORTH CITY LIMITS OF LE MARS.	156	1957-	09-02-71	4.5
6-6001.8	FLOYD R AT LE MARS, IOWA.	LAT 424802, LONG 961026, IN NW 1/4 SEC. 9, T.92 N., R.45 W., AT BRIDGE NEAR NORTH CITY LIMITS OF LE MARS.	478	1958-	09-02-71	13
6-6002	FLOYD R NR MERRILL, IOWA.	LAT 424459, LONG 961232, IN NW 1/4 SEC. 31, T.92 N., R.45 W., AT BRIDGE, 3 MILES NE OF MERRILL.	489	1957-	09-02-71	19
6-6002.5	WB FLOYD R NR MIDDLEBURG, IOWA.	LAT 430640, LONG 960452, IN NE 1/4 SEC. 30, T.96 N., R.44 W., AT BRIDGE, 1 MILE WEST OF MIDDLEBURG.	59.7	1958-	09-01-71	.14
6-6004	WB FLOYD R NR MERRILL, IOWA.	LAT 424459, LONG 961426, IN NE 1/4 SEC. 35, T.92 N., R.46 W., AT BRIDGE, 2 MILES NORTH OF MERRILL.	232	1957-	09-02-71	8.1

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		MONONA-HARRISON DITCH BASIN				
6-6015	BIG WHISKEY SLOUGH NR KINGSLEY, IOWA.	LAT 424OXX, LONG 9552XX, NEAR S 1/4 CORNER SEC.25, T.91 N., R.43 W., AT BRIDGE, 7 MILES NE OF KINGSLEY.	55.3	1957-	09-14-71	1.8
6-6016	WF L SIOUX R NR FIELDING, IOWA.	LAT 4239XX, LONG 9552XX, IN NW 1/4 SEC. 1, T.90 N., R.43 W., AT BRIDGE, 4 MILES SW OF FIELDING.	135	1957-	09-14-71	3.9
6-6017	WF L SIOUX R NR KINGSLEY, IOWA.	LAT 4235XX, LONG 96COXX, IN NW 1/4 SEC. 25, T.90 N., R.44 W., AT BRIDGE, 1 MILE WEST OF KINGSLEY.	219	1957-	09-14-71	8.5
6-6018	MUD CR AT MOVILLE, IOWA.	LAT 422928, LONG 960524, IN SW 1/4 SEC. 30, T.89 N., R.44 W., AT BRIDGE, 1 MILE WEST OF MOVILLE.	68.7	1957-	09-14-71	.74
6-6019	WF L SIOUX R AT MOVILLE, IOWA.	LAT 422830, LONG 960439, IN SE 1/4 SEC. 31, T.89 N., R.44 W., AT BRIDGE ON U. S. HIGHWAY 20, 1/2 MILE SW OF MOVILLE.	344	1957-	09-14-71	12
6-6022	ELLIOT CR NR BRONSON, IOWA.	LAT 422353, LONG 961405, IN NE 1/4 SEC. 31, T.88 N., R.46 W., AT BRIDGE, 1.5 MILES SW OF BRONSON.	58.6	1957-	09-14-71	.62
6-6022.5	BIG WHISKEY CR NR BRONSON, IOWA.	LAT 422404, LONG 961429, IN NE 1/4 SEC. 31, T.88 N., R.46 W., AT BRIDGE, 1.5 MILES SW OF BRONSON.	62.4	1957-	09-14-71	.89
6-6023	WOLF CR NR HOLLY SPRINGS, IOWA.	LAT 421806, LONG 960110, IN SW 1/4 SEC. 31, T.87 N., R.44 W., AT BRIDGE, 4 MILES NE OF HOLLY SPRINGS.	99.2	1957-	09-14-71	1.3
		LITTLE SIOUX RIVER BASIN				
6-6036	L SIOUX R NR MONTGOMERY, IOWA.	LAT 4326XX, LONG 9515XX, IN NE 1/4 SEC. 6, T.99 N., R.37 W., AT BRIDGE ON STATE HIGHWAY 9, 2.5 MILES SW OF MONTGOMERY.	118	1958-	08-09-71	.79
6-6037	WF L SIOUX R NR LAKE PARK, IOWA.	LAT 4329XX, LONG 9517XX, NEAR N 1/4 CORNER SEC.13, T.100 N., R.38 W., AT BRIDGE, 3 MILES NE OF LAKE PARK.	116	1958-	08-09-71	1.9
6-6038	WF L SIOUX R NR MONTGOMERY, IOWA.	LAT 4325XX, LONG 9516XX, IN SW 1/4 SEC. 6, T.99 N., R.37 W., AT BRIDGE, 4 MILES SW OF MONTGOMERY.	173	1958-	08-09-71	2.3
6-6039	L SIOUX R NR MILFORD, IOWA.	LAT 4319XX, LONG 9511XX, NEAR CENTER OF SEC.11, T.98 N., R.37 W., AT BRIDGE, 1.5 MILES SW OF MILFORD.	333	1958-	08-09-71	7.0
6-6041	SPIRIT LAKE OUTLET AT ORLEANS, IOWA.	LAT 4317XX, LONG 9506XX, IN SE 1/4 SEC. 28, T.100 N., R.36 W., AT CULVERT IN ORLEANS.	75.6	[c]1958-71.	08-09-71	0.0
6-6043	OKOBOJI LAKE OUTLET AT ARNOLDS PARK, IOWA.	LAT 4322XX, LONG 9508XX, IN NE 1/4 SEC. 29, T.99 N., R.36 W., AT BRIDGE IN ARNOLDS PARK.	125	1958-	08-09-71	0.0
6-6044	OKOBOJI LAKE OUTLET NR MILFORD, IOWA.	LAT 4319XX, LONG 9510XX, IN SW 1/4 SEC. 12, T.98 N., R.37 W., AT BRIDGE, 1 MILE SW OF MILFORD.	151	[d]1958-71.	08-09-71	6.9
6-6045	OCHEYEDAN R NR BIGELOW, MINN.	LAT 4327XX, LONG 9537XX, IN SE 1/4 SEC. 24, T.100 N., R.41 W., AT BRIDGE IN IOWA, 4.5 MILES SE OF BIGELOW.	68.7	1958-	08-09-71	.86
6-6046	L OCHEYEDAN R NR MAY CITY, IOWA.	LAT 4317XX, LONG 9528XX, IN NE 1/4 SEC. 29, T.98 N., R.39 W., AT BRIDGE, 3 MILES SOUTH OF MAY CITY.	54.2	1958-	08-10-71	.52
6-6047	OCHEYEDAN R NR MAY CITY, IOWA.	LAT 4316XX, LONG 9527XX, NEAR N 1/4 CORNER SEC.34, T.98 N., R.39 W., AT BRIDGE, 4 MILES SE OF MAY CITY.	226	1958-	08-10-71	12

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		LITTLE SIOUX RIVER BASIN--CONTINUED				
6-6048	STONEY CR NR FOSTORIA, IOWA.	LAT 4314XX, LONG 9520XX, IN NW 1/4 SEC. 10, T.97 N., R.38 W., AT BRIDGE, 9 MILES WEST OF FOSTORIA.	65.4	1958-	08-10-71	4.1
6-6049	STONEY CR NR EVERLY, IOWA.	LAT 430922, LONG 951458, IN NE 1/4 SEC. 7, T.96 N., R.37 W., AT BRIDGE, 4 MILES SE OF EVERLY.	81.6	1958-	08-10-71	7.4
6-6050	OCHEYEDAN R NR SPENCER, IOWA.	LAT 430744, LONG 951237, IN SW 1/4 SEC. 15, T.96 N., R.37 W., AT BRIDGE, 3 MILES SW OF SPENCER.	426	1958-	08-10-71	31
6-6051	L SIOUX R AT SPENCER, IOWA.	LAT 430813, LONG 950839, IN N 1/2 SEC. 18, T.96 N., R.36 W., AT BRIDGE ON U. S. HIGHWAY 18 AND 71, IN SPENCER.	990	+1936-42. 1957-	08-10-71	60
6-6052	BIG MUDDY CR NR LANGDON, IOWA.	LAT 431149, LONG 950411, IN NW 1/4 SEC. 26, T.97 N., R.36 W., AT BRIDGE, 1.5 MILES SE OF LANGDON.	59.7	1957-	08-10-71	2.8
6-6053	BIG MUDDY CR NR SPENCER, IOWA.	LAT 430828, LONG 950514, IN NW 1/4 SEC. 15, T.96 N., R.36 W., AT BRIDGE, 3 MILES EAST OF SPENCER.	102	1957-	08-10-71	6.5
6-6054	PICKEREL RUN NR SPENCER, IOWA.	LAT 4312XX, LONG 9458XX, IN NW 1/4 SEC. 27, T.97 N., R.35 W., AT BRIDGE, 9 MILES NE OF SPENCER.	75.7	1957-	08-10-71	8.7
6-6055	LOST ISLAND OUTLET NR OICKENS, IOWA.	LAT 430707, LONG 950158, AT W 1/4 CORNER SEC.19, T.96 N., R.35 W., AT BRIDGE, 1 MILE SOUTH OF OICKENS.	151	1957-	08-10-71	28
6-6057	WILLOW CR NR ROSSI, IOWA.	LAT 4259XX, LONG 9510XX, IN SE 1/4 SEC. 4, T.94 N., R.37 W., AT BRIDGE, 2 MILES SE OF ROSSI.	62.6	1957-	08-10-71	0.0
6-6058	WILLOW CR NR GREENVILLE, IOWA.	LAT 4259XX, LONG 9509XX, NEAR CENTER OF SEC.7, T.94 N., R.36 W., AT BRIDGE, 3 MILES SOUTH OF GREENVILLE.	90.3	1957-	08-10-71	7.7
6-6059	WATERMAN CR NR HARTLEY, IOWA.	LAT 43D5XX, LONG 9527XX, IN NE 1/4 SEC. 4, T.95 N., R.39 W., AT BRIDGE, 6.5 MILES SE OF HARTLEY.	58.4	1958-	08-11-71	.17
6-6060	WATERMAN CR NR SUTHERLAND, IOWA.	LAT 4257XX, LONG 9525XX, NEAR CENTER OF SEC.23, T.94 N., R.39 W., AT BRIDGE, 4.5 MILES SE OF SUTHERLAND.	139	1958-	08-11-71	5.1
6-6061	L SIOUX R NR SUTHERLAND, IOWA.	LAT 4256XX, LONG 9525XX, IN NW 1/4 SEC. 26, T.94 N., R.39 W., AT BRIDGE, 5 MILES SE OF SUTHERLAND.	1803	1958-	08-11-71	185
6-6062	MILL CR NR PAULINA, IOWA.	LAT 430134, LONG 954237, NEAR N 1/4 CORNER SEC.29, T.95 N., R.41 W., AT BRIDGE, 3 MILES NW OF PAULINA.	61.6	1958-	08-11-71	.25
6-6063	MILL CR NR CHEROKEE, IOWA.	LAT 4247XX, LONG 9533XX, NEAR CENTER OF SEC.15, T.92 N., R.40 W., AT BRIDGE, ON U. S. HIGHWAY 59, 2 MILES NORTH OF CHEROKEE.	292	1958-	08-11-71	13
6-6064	L SIOUX R AT CHEROKEE, IOWA.	LAT 4245XX, LONG 9532XX, IN E 1/2 SEC. 26, T.92 N., T.40 W., AT BRIDGE NEAR EAST CITY LIMITS OF CHEROKEE.	2173	1958-	08-11-71	240
6-6068	MAPLE R NR AURELIA, IOWA.	LAT 4243XX, LONG 9529XX, IN NW 1/4 SEC. 8, T.91 N., R.39 W., AT BRIDGE, 2 MILES NW OF AURELIA.	85.2	1958-	08-11-71	2.6
6-6069	MAPLE R NR IDA GROVE, IOWA.	LAT 422155, LONG 952727, IN NW 1/4 SEC. 12, T.87 N., R.40 W., AT BRIDGE, 1 MILE NE OF IDA GROVE.	364	1957-	09-14-71	14

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		LITTLE SIOUX RIVER BASIN--CONTINUED				
6-6071	ODEBOLT CR AT IDA GROVE, IOWA.	LAT 422049, LONG 952803, NEAR CENTER OF SEC.14, T.87 N., R.40 W., AT BRIDGE IN IDA GROVE.	61.1	1957-	09-14-71	1.5
6-6074	MAPLE R NR TURIN, IOWA.	LAT 4201XX, LONG 9558XX, IN SW 1/4 SEC. 10, T.83 N., R.44 W., AT BRIDGE, 1 MILE SE OF TURIN.	741	1957-	09-14-71	36
		SOLDIER RIVER BASIN				
6-6083	SOLDIER R NR RICKETTS, IOWA.	LAT 4212XX, LONG 9535XX, IN SW 1/4 SEC. 1, T.85 N., R.41 W., AT BRIDGE, 5 MILES NORTH OF RICKETTS.	90.5	1959-	08-11-71	3.8
6-6083.5	SOLDIER R NR UTE, IOWA.	LAT 4203XX, LONG 9543XX, IN SE 1/4 SEC. 34, T.84 N., R.42 W., AT BRIDGE ON STATE HIGHWAY 183, 1 MILE SW OF UTE.	155	1957-	08-11-71	6.1
6-6084	E SOLDIER R NR UTE, IOWA.	LAT 4203XX, LONG 9542XX, IN SW 1/4 SEC. 35, T.84 N., R.42 W., AT BRIDGE NEAR SW CITY LIMITS OF UTE.	97.8	1957-	08-11-71	3.1
		ALLEN DITCH BASIN				
6-6092.2	ALLEN DITCH NR LOVELAND, IOWA.	LAT 4129XX, LONG 9555XX, IN NE 1/4 SEC. 17, T.77 N., R.44 W., AT BRIDGE, 2 MILES SW OF LOVELAND.	92.1	1957-	08-18-71	0.0
		BOYER RIVER BASIN				
6-6092.6	BOYER R NR EARLY, IOWA.	LAT 4228XX, LONG 9511XX, IN NE 1/4 SEC. 6, T.88 N., R.37 W., AT BRIDGE ON U.S. HIGHWAY 20, 2 MILES NW OF EARLY.	67.5	1957-	08-17-71	3.1
6-6093	E BOYER R AT VAIL, IOWA.	LAT 4204XX, LONG 9512XX, IN E 1/2 SEC. 30, T.84 N., R.37 W., AT BRIDGE NEAR EAST CITY LIMITS OF VAIL.	65.4	1957-	08-17-71	2.9
6-6093.5	E BOYER R AT DENISON, IOWA.	LAT 4201XX, LONG 9522XX, IN SE 1/4 SEC. 10, T.83 N., R.39 W., AT BRIDGE ON U.S. HIGHWAY 30, NEAR WEST CITY LIMITS OF DENISON.	130	1957-	08-17-71	6.2
6-6094	BOYER R NR DENISON, IOWA.	LAT 4200XX, LONG 9523XX, IN NE 1/4 SEC. 16, T.83 N., R.39 W., AT BRIDGE, 2 MILES SW OF DENISON.	517	1957-	08-17-71	20
6-6095.5	BOYER R NR MISSOURI VALLEY, IOWA.	LAT 4131XX, LONG 9554XX, IN SE 1/4 SEC. 28, T.78 N., R.44 W., AT BRIDGE, 2 MILES SOUTH OF MISSOURI VALLEY.	1081	1957-	08-18-71	31
6-6095.8	WILLOW CR NR WOODBINE, IOWA.	LAT 4148XX, LONG 9545XX, IN NE 1/4 SEC. 29, T.81 N., R.42 W., AT BRIDGE, 5.5 MILES NW OF WOODBINE.	67.0	1957-	08-17-71	1.4
6-6096	WILLOW CR NR LOGAN, IOWA.	LAT 4138XX, LONG 9553XX, IN NE 1/4 SEC. 30, T.79 N., R.43 W., AT BRIDGE, 5 MILES WEST OF LOGAN.	129	1957-	08-17-71	3.3
6-6096.2	WILLOW CR NR MISSOURI VALLEY, IOWA.	LAT 4131XX, LONG 9554XX, IN SE 1/4 SEC. 28, T.78 N., R.44 W., AT BRIDGE, 2 MILES SOUTH OF MISSOURI VALLEY.	146	1957-	08-18-71	1.9
6-6096.7	BOYER R NR LOVELAND, IOWA.	LAT 412758, LONG 955437, IN CENTER OF SEC.4, T.77 N., R.44 W., AT BRIDGE, 1 MILE WEST OF LOVELAND.	1084	1957-	08-17-71	0.0
		PIGEON CREEK BASIN				
6-6099	PIGEON CR EAST OF LOVELAND, IOWA.	LAT 412838, LONG 954213, IN SW 1/4 SEC. 8, T.77 N., R.42 W., AT BRIDGE, 10 MILES SE OF LOVELAND.	66.6	1957-	08-18-71	1.1
6-6099.5	PIGEON CR NR CRESCENT, IOWA.	LAT 411947, LONG 955319, IN NE 1/4 SEC. 3, T.75 N., R.44 W., AT BRIDGE, 3 MILES SW OF CRESCENT.	163	1957-	08-18-71	4.1

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		MOSQUITO CREEK BASIN				
6-61D5.5	MOSQUITO CR AT PORTSMOUTH, IOWA.	LAT 4139XX, LONG 9531XX, IN SW 1/4 SEC. 16, T.79 N., R.4D W., AT BRIDGE ON STATE HIGHWAY 64, NEAR EAST CITY LIMITS OF PORTSMOUTH.	63.9	1957-	08-17-71	.88
*6-61D6	MOSQUITO CR AT NEOLA, IOWA.	LAT 4127D9, LONG 953637, IN NE 1/4 SEC. 19, T.77 N., R.42 W., AT BRIDGE ON COUNTY ROAD S, 0.5 MILE SOUTH OF NEOLA.	131	1957-	08-17-71	3.5
6-61D6.5	MOSQUITO CR NR COUNCIL BLUFFS, IOWA.	LAT 4116D9, LONG 954822, IN E 1/2 SEC. 29, T.75 N., R.43 W., AT BRIDGE, 3 MILES EAST OF COUNCIL BLUFFS.	211	1957-	08-17-71	10
		KEG CREEK BASIN				
6-8D57	KEG CR AT MINDEN, IOWA.	LAT 412757, LONG 953215, IN SE 1/4 SEC. 15, T.77 N., R.41 W., AT BRIDGE, AT EAST CITY LIMITS OF MINDEN.	59.6	1957-	08-17-71	1.3
6-8D58	KEG CR NR DUMFRIES, IOWA.	LAT 41112D, LONG 954059, IN NW 1/4 SEC. 28, T.74 N., R.42 W., AT BRIDGE, 3 MILES NE OF DUMFRIES.	131	1957-	08-17-71	8.8
6-8D59	KEG CR NR GLENWOOD, IOWA.	LAT 41D056, LONG 954559, IN NE 1/4 SEC. 27, T.72 N., R.43 W., AT BRIDGE, 2 MILES SW OF GLENWOOD.	190	1957-	08-17-71	15
		NISHNABOTNA RIVER BASIN				
6-8D72.6	W NISHNABOTNA R NR MANNING, IOWA.	LAT 4153XX, LONG 95D5XX, IN NW 1/4 SEC. 31, T.82 N., R.26 W., AT BRIDGE, 3 MILES SW OF MANNING.	58.6	1957-	08-30-71	5.2
6-8D72.8	WF W NISHNABOTNA R NR MANILLA, IOWA.	LAT 4152XX, LONG 9515XX, NEAR W 1/4 CORNER SEC.35, T.82 N., R.38 W., AT BRIDGE, 1 MILE SOUTH OF MANILLA.	64.2	1960-	08-30-71	1.4
6-8D73	WF W NISHNABOTNA R AT HARLAN, IOWA.	LAT 414DXX, LONG 9518XX, IN NE 1/4 SEC. 7, T.79 N., R.38 W., AT BRIDGE NEAR NE CITY LIMITS OF HARLAN.	146	1957-	08-30-71	2.6
6-8D73.2	W NISHNABOTNA R AT HARLAN, IOWA.	LAT 4138XX, LONG 9518XX, IN NE 1/4 SEC. 19, T.79 N., R.38 W., AT BRIDGE ON STATE HIGHWAY 64, NEAR EAST CITY LIMITS OF HARLAN.	316	1957-	08-30-71	7.1
6-8D73.4	W NISHNABOTNA R AT AVOCA, IOWA.	LAT 412810, LONG 952114, IN NE 1/4 SEC. 17, T.77 N., R.39 W., AT BRIDGE ON STATE HIGHWAY 83, NEAR WEST CITY LIMITS OF AVOCA.	357	1957-	08-31-71	9.9
6-8D73.6	EB W NISHNABOTNA R NR RED LINE, IOWA.	LAT 4144XX, LONG 95D6XX, IN NE 1/4 SEC. 13, T.80 N., R.37 W., AT BRIDGE ON STATE HIGHWAY 64, 3 MILES NE OF RED LINE.	70.3	1957-	08-30-71	1.1
6-8D73.8	EB W NISHNABOTNA R NR JACKSONVILLE, IOWA.	LAT 4139XX, LONG 9514XX, IN NE 1/4 SEC. 23, T.79 N., R.38 W., AT BRIDGE, 4 MILES WEST OF JACKSONVILLE.	151	1957-	08-30-71	4.0
6-8D74	EB W NISHNABOTNA R AT AVOCA, IOWA.	LAT 412835, LONG 951947, IN NE 1/4 SEC. 16, T.77 N., R.39 W., AT BRIDGE ON STATE HIGHWAY 83 IN AVOCA.	223	1957-	08-31-71	5.4
6-8D74.2	GRAYBILL CR NR MACEDONIA, IOWA.	LAT 4111XX, LONG 9523XX, IN SE 1/4 SEC. 25, T.74 N., R.4D W., AT BRIDGE, 2 MILES SE OF MACEDONIA.	52.1	1957-	08-31-71	1.6
6-8D74.4	FARM CR NR MACEDONIA, IOWA.	LAT 4110XX, LONG 9523XX, IN SE 1/4 SEC. 36, T.74 N., R.40 W., AT BRIDGE, 3 MILES SE OF MACEDONIA.	104	1957-	08-31-71	4.4
6-8D74.8	INDIAN CR NR HASTINGS, IOWA.	LAT 410151, LONG 953004, IN SE 1/4 SEC. 13, T.72 N., R.41 W., AT BRIDGE, 0.5 MILE NORTH OF HASTINGS.	67.9	1957-	08-31-71	.75

OISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORO STATIONS OURING WATER YEAR 1971--CONTINUEO

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOO OF RECORO	MEASUREMENTS OATE	MEASUREMENTS OISCHARGE (CFS)
		NISHNA8OTNA RIVER 8ASIN--CONTINUEO				
6-8075	W NISHNA8OTNA R AT WHITE CLOUD, IOWA.	LAT 4D5914, LONG 953140, IN NW 1/4 SEC. 2, T.71 N., R.41 W., AT 8RIOGE, 0.5 MILE NW OF WHITE CLOUO.	967	+1918-24. 1957-	08-31-71	41
6-8075.5	W NISHNA8OTNA R NR MALVERN, IOWA.	LAT 405730, LONG 953322, IN NW 1/4 SEC. 15, T.71 N., R.41 W., AT 8RIOGE, 3.5 MILES SF CF MALVERN.	974	1957-	08-31-71	42
6-8076	SILVER CR NR AVOCA, IOWA.	LAT 412507, LONG 952653, IN NE 1/4 SEC. 4, T.76 N., R.40 W., AT 8RIOGE, 7 MILES SW OF AVOCA.	59.2	1957-	08-31-71	.91
6-8076.5	SILVER CR NR TREYNOR, IOWA.	LAT 411D42, LONG 953434, IN SW 1/4 SEC. 28, T.74 N., R.41 W., AT 8RIOGE, 4 MILES SE OF TREYNOR.	115	1957-	D8-31-71	6.9
6-8078	M SILVER CR NR TREYNOR, IOWA.	LAT 411041, LONG 953600, IN SE 1/4 SEC. 30, T.74 N., R.41 W., AT 8RIOGE, 4 MILES SOUTH OF TREYNOR.	74.3	1957-	08-31-71	5.5
6-8079	SILVER CR NR MALVERN, IOWA.	LAT 405656, LONG 95342D, IN SW 1/4 SEC. 16, T.71 N., R.41 W., AT 8RIOGE, 4 MILES SOUTH OF MALVERN.	282	1957-	08-31-71	21
6-8D86	WALNUT CR NR GRISWOLO, IOWA.	LAT 4117XX, LONG 9513XX, IN NW 1/4 SEC. 22, T.74 N., R.38 W., AT 8RIOGE, 5 MILES NW OF GRISWOLO.	61.3	1957-	08-31-71	.65
6-8087	WALNUT CR NR HAWTHORNE, IOWA.	LAT 4058XX, LONG 9522XX, IN NW 1/4 SEC. 17, T.71 N., R.39 W., AT 8RIDGE, 3 MILES SW OF HAWTHORNE.	140	1957-	08-31-71	1.7
6-8088	WALNUT CR NR RANOOLPH, IOWA.	LAT 404739, LONG 953325, NEAR E 1/4 CORNER SEC.9, T.69 N., R.41 W., AT 8RIOGE, 5.5 MILES SOUTH OF RANDOLPH.	222	1957-	D8-31-71	2.8
6-8088.5	E NISHNA8OTNA R NR AUOU8ON, IOWA.	LAT 4147XX, LONG 9451XX, IN NW 1/4 SEC. 6, T.8D N., R.34 W., AT 8RIOGE, 5 MILES NE OF AUDU8ON.	66.7	1957-	C8-30-71	.72
6-8089	E NISHNA8OTNA R AT EXIRA, IOWA.	LAT 4135XX, LONG 9454XX, IN NW 1/4 SEC. 4, T.78 N., R.35 W., AT 8RIOGE AT WEST CITY LIMITS OF EXIRA.	195	1957-	C8-30-71	2.9
6-8090.5	OAVIOS CR AT EXIRA, IOWA.	LAT 4135XX, LONG 9453XX, IN NE 1/4 SEC. 4, T.78 N., R.35 W., AT 8RIDGE NEAR EAST CITY LIMITS OF EXIRA.	56.7	1957-	C8-30-71	1.5
6-8091	TROU8LESOME CR NR WIOTA, IOWA.	LAT 413DXX, LONG 9451XX, IN NW 1/4 SEC. 2, T.77 N., R.35 W., AT 8RIOGE, 7.5 MILES NE OF WIOTA.	68.4	1957-	08-30-71	.92
6-8D91.5	TROU8LESOME CR NR ATLANTIC, IOWA.	LAT 4125XX, LONG 9458XX, IN NE 1/4 SEC. 3, T.76 N., R.36 W., AT 8RIOGE, 2 MILES NE OF ATLANTIC.	128	1957-	C8-3D-71	4.4
6-8092	E NISHNA8OTNA R AT ATLANTIC, IOWA.	LAT 4124XX, LONG 9502XX, IN SE 1/4 SEC. 6, T.76 N., R.36 W., AT 8RIOGE ON STATE HIGHWAY 83, NEAR WEST CITY LIMITS OF ATLANTIC.	382	1957-	D8-30-71	15
6-8092.5	TURKEY CR EAST OF ATLANTIC, IOWA.	LAT 4123XX, LONG 9455XX, IN SE 1/4 SEC. 7, T.76 N., R.35 W., AT BRIDGE, 5 MILES SE OF ATLANTIC.	69.5	1957-	08-30-71	.48
6-8093	TURKFY CR NR ATLANTIC, IOWA.	LAT 4119XX, LONG 9404XX, NEAR CENTER OF SEC.2, T.75 N., R.37 W., AT 8RIDGE, 6 MILES SW OF ATLANTIC.	133	1957-	D8-31-71	1.2
6-8093.3	E NISHNA8OTNA R NR LEWIS, IOWA.	LAT 4119XX, LONG 9505XX, IN NE 1/4 SEC. 10, T.75 N., R.37 W., AT 8RIDGE ON U.S. HIGHWAY 6, 1 MILE NORTH OF LEWIS.	574	1957-	D8-31-71	16

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		NISHNA8OTNA RIVER 8ASIN--CONTINUED				
6-8093.5	INDIAN CR NR ELKHORN, IOWA.	LAT 4133XX, LONG 9508XX, IN N 1/2 SEC. 20, T.78 N., R.37 W., AT 8RIDGE, 5 MILES SW OF ELKHORN.	67.4	1957-	08-30-71	1.5
6-8094	INDIAN CR NR LEWIS, IOWA.	LAT 4118XX, LONG 9508XX, IN SW 1/4 SEC. 8, T.75 N., R.37 W., AT 8RIDGE, 2 MILES WEST OF LEWIS.	183	1957-	08-31-71	4.5
6-8094.5	E NISHNA8OTNA R NR GRISWOLD, IOWA.	LAT 4117XX, LONG 9508XX, IN SE 1/4 SEC. 18, T.75 N., R.37 W., AT 8RIDGE ON STATE HIGHWAY 48, 4 MILES NORTH OF GRISWOLD.	778	1957-	08-31-71	22
6-8098	E NISHNA8OTNA R NR FARRAGUT, IOWA.	LAT 4045XX, LONG 9529XX, IN SE 1/4 SEC. 30, T.69 N., R.40 W., AT 8RIDGE ON STATE HIGHWAY 174, 1.5 MILES NORTH OF FARRAGUT.	1082	1957-	08-31-71	48
		TARKIO RIVER 8ASIN				
6-8118.6	TARKIO R NR CO8URG, IOWA.	LAT 4054XX, LONG 9508XX, IN NW 1/4 SEC. 5, T.70 N., R.37 W., AT 8RIDGE, 6 MILES SE OF CO8URG.	66.6	1957-	08-24-71	.40
6-8118.8	E TARKIO CR NR YORKTOWN, IOWA.	LAT 4043XX, LONG 9512XX, IN SW 1/4 SEC. 10, T.68 N., R.38 W., AT 8RIDGE, 2.5 MILES SW OF YORKTOWN.	58.0	1957-	08-24-71	.70
6-8119	TARKIO R NR YORKTOWN, IOWA.	LAT 4043XX, LONG 9513XX, IN N 1/2 SEC. 16, T.68 N., R.38 W., AT 8RIDGE, 3 MILES SW OF YORKTOWN.	155	1957-	08-24-71	1.5
6-8120	TARKIO R AT 8LANCHARO, IOWA.	LAT 4036XX, LONG 9514XX, IN NE 1/4 SEC. 29, T.67 N., R.38 W., AT 8RIDGE, 1 MILE NORTH OF 8LANCHARD.	200	+1934-40. 1957-	08-24-71	2.8
6-8123	W TARKIO CR NR COIN, IOWA.	LAT 4041XX, LONG 9518XX, NEAR S 1/2 CORNER SEC.22, T.68 N., R.39 W., AT 8RIOGE, 4 MILES NW OF COIN.	66.9	1957-	08-24-71	.29
6-8124	W TARKIO CR NR NORTH8ORO, IOWA.	LAT 4035XX, LONG 9521XX, IN SW 1/4 SEC. 29, T.67 N., R.39 W., AT 8RIOGE, 3.5 MILES SW OF NORTH8ORO.	87.7	1957-	08-24-71	.88
		NODAWAY RIVER 8ASIN				
6-8163	W NODAWAY R NR CUM8ERLAND, IOWA.	LAT 4112XX, LONG 9452XX, IN SW 1/4 SEC. 15, T.74 N., R.35 W., AT 8RIOGE, 4 MILES SOUTH OF CUM8ERLAND.	65.1	1957-	09-14-71	.26
6-8163.5	SEVENMILE CR NR LYMAN, IOWA.	LAT 4115XX, LONG 9459XX, IN SE 1/4 SEC. 33, T.75 N., R.36 W., AT 8RIDGE ON U. S. HIGHWAY 71, 1.5 MILES NORTH OF LYMAN.	60.8	1957-	08-24-71 09-14-71	1.7 .81
6-8164	SEVENMILE CR NR MORTON MILL, IOWA.	LAT 4106XX, LONG 9500XX, IN NW 1/4 SEC. 33, T.73 N., R.36 W., AT 8RIDGE, 1 MILE NW OF MORTON MILL.	124	1957-	09-14-71	11
6-8165.5	W NODAWAY R NR VILLISCA, IOWA.	LAT 4055XX, LONG 9500XX, NEAR CENTER OF SEC.28, T.71 N., R.36 W., AT 8RIDGE NEAR WEST CITY LIMITS OF VILLISCA.	344	1957-	08-24-71 09-14-71	14 14
6-8166	M NODAWAY R NR 8RIDGEWATER, IOWA.	LAT 4110XX, LONG 9439XX, IN NE 1/4 SEC. 33, T.74 N., R.33 W., AT 8RIDGE, 5 MILES SE OF 8RIOGEWATER.	89.3	1957-	09-14-71	.02
6-8167	WF M NODAWAY R NR FONTANELLE, IOWA.	LAT 4119XX, LONG 9439XX, NEAR CENTER OF SEC.4, T.75 N., R.33 W., AT 8RIDGE, 5 MILES NW OF FONTANELLE.	67.9	1957-	09-14-71	.02
6-8168	WF M NODAWAY R NR 8RIOGEWATER, IOWA.	LAT 4111XX, LONG 9439XX, NEAR CENTER OF SEC.28, T.74 N., R.33 W., AT 8RIDGE, 4.5 MILES SOUTH OF 8RIDGEWATER.	128	1957-	09-14-71	.88
6-8169	M NODAWAY R NR VILLISCA, IOWA.	LAT 4055XX, LONG 9459XX, IN NW 1/4 SEC. 34, T.71 N., R.36 W., AT 8RIDGE ON U. S. HIGHWAY 71, 1 MILE SOUTH OF VILLISCA.	341	1957-	08-24-71 09-14-71	11 5.4

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		NODAWAY RIVER BASIN--CONTINUED				
6-8170.5	E NODAWAY R NR WILLIAMSON, IOWA.	LAT 4106XX, LONG 9433XX, IN NW 1/4 SEC. 28, T.73 N., R.32 W., AT BRIDGE, 3 MILES SE OF WILLIAMSON.	54.2	1957-	09-14-71	.02
6-8171	E NODAWAY R NR SHAMBAUGH, IOWA.	LAT 4038XX, LONG 9501XX, IN NE 1/4 SEC. 6, T.67 N., R.36 W., AT BRIDGE, 2 MILES SE OF SHAMBAUGH.	333	1957-	08-24-71 09-14-71	5.9 4.1
6-8172	NODAWAY R NR BRADDYVILLE, IOWA.	LAT 4037XX, LONG 9501XX, NEAR CENTER OF SEC.18, T.67 N., R.36 W., AT BRIDGE, 3 MILES NORTH OF BRADDYVILLE.	1135	1957-	08-24-71 09-14-71	35 25
		PLATTE RIVER BASIN				
6-8186	PLATTE R NR KENT, IOWA.	LAT 4057XX, LONG 9429XX, IN SW 1/4 SEC. 13, T.71 N., R.32 W., AT BRIDGE, 2 MILES WEST OF KENT.	77.9	1957-	08-24-71	.90
6-8186.5	E PLATTE R NR KNOWLTON, IOWA.	LAT 4054XX, LONG 9426XX, IN NW 1/4 SEC. 4, T.70 N., R.31 W., AT BRIDGE, 7 MILES NW OF KNOWLTON.	66.8	1957-	08-24-71	.02
6-8187	PLATTE R NR KNOWLTON, IOWA.	LAT 4052XX, LONG 9426XX, IN NW 1/4 SEC. 16, T.70 N., R.31 W., AT BRIDGE, 6 MILES NW OF KNOWLTON.	179	1959-	08-24-71	1.5
6-8191	W8 102 R NR GRAVITY, IOWA.	LAT 4049XX, LONG 9449XX, IN SE 1/4 SEC. 31, T.70 N., R.34 W., AT BRIDGE, 5 MILES NW OF GRAVITY.	52.2	1957-	08-24-71	.01
6-8191.2	W8 102 R BELOW M8 NR GRAVITY, IOWA.	LAT 4048XX, LONG 9449XX, IN NW 1/4 SEC. 7, T.69 N., R.34 W., AT BRIDGE, 4.5 MILES NW OF GRAVITY.	106	1957-	08-24-71	.18
6-8191.4	W8 102 R NR NEW MARKET, IOWA.	LAT 4044XX, LONG 9451XX, IN SW 1/4 SEC. 35, T.69 N., R.35 W., AT BRIDGE, 2.75 MILES EAST OF NEW MARKET.	123	1957-	08-24-71	.34
6-8191.5	WF 102 R NR NEW MARKET, IOWA.	LAT 4043XX, LONG 9451XX, IN NW 1/4 SEC. 10, T.68 N., R.35 W., AT BRIDGE, 3 MILES SE OF NEW MARKET.	183	1957-	08-24-71	.51
6-8191.8	EF 102 R NR BEDFORD, IOWA.	LAT 4044XX, LONG 9439XX, IN NE 1/4 SEC. 4, T.68 N., R.33 W., AT BRIDGE, 5 MILES NE OF BEDFORD.	60.4	1957-	08-24-71	.02
6-8191.95	MF 102 R NR BEDFORD, IOWA.	LAT 4035XX, LONG 9449XX, IN NE 1/4 SEC. 26, T.67 N., R.35 W., AT BRIDGE, 7 MILES SW OF BEDFORD.	59.8	1957-	08-24-71	.14
		GRAND RIVER BASIN				
6-8961	GRAND R AT KNOWLTON, IOWA.	LAT 4050XX, LONG 9420XX, IN SE 1/4 SEC. 29, T.70 N., R.30 W., AT BRIDGE NEAR EAST CITY LIMITS OF KNOWLTON.	67.5	1957-	09-20-71	.10
6-8961.5	GRAND R NR BLOCKTON, IOWA.	LAT 4037XX, LONG 9425XX, IN SW 1/4 SEC. 10, T.67 N., R.31 W., AT BRIDGE, 3.5 MILES EAST OF BLOCKTON (REVISED).	207	1957-	09-20-71	2.5
6-8962	EF GRAND R NR MT. AYR, IOWA.	LAT 4043XX, LONG 9410XX, IN SE 1/4 SEC. 3, T.68 N., R.29 W., AT BRIDGE ON STATE HIGHWAY 2, 3 MILES EAST OF MT. AYR.	64.7	1957-	09-20-71	.07
6-8962.5	EF GRAND R SOUTH OF MT. AYR, IOWA.	LAT 4035XX, LONG 9414XX, IN SW 1/4 SEC. 19, T.67 N., R.29 W., AT BRIDGE, 9 MILES SOUTH OF MT. AYR.	95.9	1957-	09-20-71	.05
6-8977.7	THOMPSON R NR HEBRON, IOWA.	LAT 4114XX, LONG 9416XX, IN SW 1/4 SEC. 1, T.74 N., R.30 W., AT BRIDGE, 2 MILES SE OF HEBRON.	80.0	1957-	09-20-71	.31
6-8978	THREEMILE CR NR AFTON, IOWA.	LAT 4102XX, LONG 9408XX, NEAR CENTER OF SEC.13, T.72 N., R.29 W., AT BRIDGE 3 MILES EAST OF AFTON.	54.8	1957-	09-21-71	0

DISCHARGE MEASUREMENTS MADE AT LOW-FLOW PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	MEASUREMENTS DATE	MEASUREMENTS DISCHARGE (CFS)
		GRAND RIVER BASIN--CONTINUED				
6-8978.2	THOMPSON R NR AFTON, IOWA.	LAT 4102XX, LONG 9406XX, IN SW 1/4 SEC. 17, T.72 N., R.28 W., AT BRIDGE ON U. S. HIGHWAY 34 AND 169, 5 MILES EAST OF AFTON.	231	1957-	09-21-71	.88
6-8978.8	TWELVEMILE CR NR ARISPE, IOWA.	LAT 4056XX, LONG 9406XX, IN SE 1/4 SEC. 17, T.71 N., R.28 W., AT BRIDGE, 6 MILES EAST OF ARISPE	68.0	1957-	09-21-71	0
6-8979	THOMPSON R NR GRAND RIVER, IOWA.	LAT 4052XX, LONG 9358XX, IN NE 1/4 SEC. 16, T.70 N., R.27 W., AT BRIDGE, 3.5 MILES NORTH OF GRAND RIVER.	401	1957-	09-20-71	2.4
6-8979.4	LONG CR NR VAN WERT, IOWA.	LAT 4049XX, LONG 9352XX, IN NE 1/4 SEC. 32, T.70 N., R.26 W., AT BRIDGE, 5 MILES SE OF VAN WERT.	117	1957-	09-20-71	.05
6-8983	WELDON R EAST OF LEON, IOWA.	LAT 404518, LONG 933805, IN SE 1/4 SEC. 20, T.69 N., R.24 W., AT BRIDGE ON STATE HIGHWAY 2, 6 MILES EAST OF LEON.	72.4	1957-	09-20-71	.22
6-8984.5	WELDON R NR PLEASANTON, IOWA.	LAT 403540, LONG 933620, IN NW 1/4 SEC. 22, T.67 N., R.24 W., AT BRIDGE, 7 MILES EAST OF PLEASANTON.	228	1957-	09-21-71	1.3
6-8984.7	LITTLE R NR LEON IOWA.	LAT 403936, LONG 934459, IN SE 1/4 SEC. 29, T.68 N., R.25 W., AT BRIDGE, 6 MILES SOUTH OF LEON.	69.2	1957-	09-21-71	.02
		CHARITON RIVER BASIN				
6-9033	CHARITON R NR DERBY, IOWA.	LAT 4057XX, LONG 932BXX, IN NW 1/4 SEC. 13, T.71 N., R.23 W., AT BRIDGE, 1.5 MILES NORTH OF DERBY.	71.0	1957-	08-24-71	.06
6-9033.5	WOLF CR NR CHARITON, IOWA.	LAT 4056XX, LONG 9316XX, IN SE 1/4 SEC. 16, T.71 N., R.21 W., AT BRIDGE, 5 MILES SE OF CHARITON.	65.0	1957-	08-24-71	.02
6-9036	SF CHARITON R NR CAMBRIA, IOWA.	LAT 4049XX, LONG 9323XX, IN NW 1/4 SEC. 3, T.69 N., R.22 W., AT BRIDGE, 2 MILES SOUTH OF CAMBRIA.	58.0	1958-	08-24-71	.01
6-9036.5	SF CHARITON R NR CORYDON, IOWA.	LAT 4049XX, LONG 9319XX, IN NW 1/4 SEC. 6, T.69 N., R.21 W., AT BRIDGE ON STATE HIGHWAY 14, 4 MILES NORTH OF CORYDON.	68.1	1957-	08-24-71	.10
6-9041.5	SHOAL CR NR CINCINNATI, IOWA.	LAT 4037XX, LONG 9252XX, IN SW 1/4 SEC. 6, T.67 N., R.17 W., AT BRIDGE, 3 MILES EAST OF CINCINNATI.	56.6	1958-	08-24-71	.01

\+ Operated as a continuous-record gaging station
* Also a crest-stage partial-record station
a Discontinued as a low-flow partial-record station; established as a continuous-record station 10-1-71 as "at Des Moines"
b Discontinued as a low-flow partial-record station; established as a continuous-record station 10-1-71
c Discontinued as a low-flow partial-record station; established as a continuous-record station 4-20-71
d Discontinued as a low-flow partial-record station; established as a continuous-record station 4-20-71 as "at Milford"

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years up to the current year for which the annual maximum has been determined.

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		UPPER IOWA RIVER BASIN					
5-3883.1	WATERLOO CR NR DORCHESTER, IOWA.	LAT 4327XX, LONG 9130XX, IN NW 1/4 SEC. 25, T.100 N., R.6 W., AT BRIDGE ON STATE HIGHWAY 76, 1.4 MILES SOUTH OF DORCHESTER.	43.6	1966-	1971	A	(+)
		WEXFORD CREEK BASIN					
5-3884	WEXFORD CR NR HARPERS FERRY, IOWA.	LAT 4316XX, LONG 9108XX, IN SE 1/4 SEC. 25, T.98 N., R.3 W., AT BRIDGE, 5 MILES NORTH OF HARPERS FERRY.	11.9	1953-	1971	A	(+)
		PAINT CREEK BASIN					
5-3886	PAINT CR NR WATERVILLE, IOWA.	LAT 4311XX, LONG 9116XX, NEAR CENTER SEC.36, T.97 N., R.4 W., AT BRIDGE, 3 MILES SOUTHEAST OF WATERVILLE.	56.0	1953-	06-24-71	8.15	1,070
5-3887	LITTLE PAINT CR TR NR WATERVILLE, IOWA.	LAT 4314XX, LONG 9115XX, IN SE 1/4 SEC. 1, T.97 N., R.4 W., AT CULVERT, 3.5 MILES NORTHEAST OF WATERVILLE.	1.09	1953-	1971	A	(+)
		TURKEY RIVER BASIN					
5-4115.3	NB TURKEY R NR CRESCO, IOWA.	LAT 4322XX, LONG 9213XX, IN NW 1/4 SEC. 25, T.99 N., R.12 W., AT BRIDGE ON STATE HIGHWAY 9, ABOUT 5 MILES WEST OF CRESCO.	19.5	1966-	10-09-70	89.86	990
5-4116.5	CRANE CR TR NR SARATOGA, IOWA.	LAT 4322XX, LONG 9223XX, NEAR SOUTHEAST CORNER OF SEC.21, T.99 N., R.13 W., AT BRIDGE ON STATE HIGHWAY 9, 1 MILE EAST OF SARATOGA.	4.06	1953-	10-09-70	5.80	1,030
5-4117	CRANE CR NR LOURDES, IOWA.	LAT 4315XX, LONG 9219XX, IN NW 1/4 SEC. 6, T.97 N., R.12 W., AT BRIDGE ON STATE HIGHWAY 272, 1 MILE SW OF LOURDES.	75.8	1953-	10-09-70	11.46	3,700
		LITTLE MAQUOKETA RIVER BASIN					
5-4143.5	LITTLE MAQUOKETA R NEAR GRAF, IOWA.	LAT 4230XX, LONG 9052XX, IN SE 1/4 SEC. 20, T.89 N., R.1 E., AT BRIDGE ABOUT 300 FEET DOWNSTREAM FROM ILLINOIS CENTRAL RR BRIDGE, 0.5 MILE NORTHEAST OF GRAF.	39.6	1952-	02-26-71	10.09	2,500
5-4144	NF LITTLE MAQUOKETA R NEAR RICKARDSVILLE, IOWA.	LAT 423338, LONG 905135, IN SE 1/4 SEC. 32, T.90 N., R.1 E., AT BRIDGE, 2 MILES SOUTHEAST OF RICKARDSVILLE.	30.2	1966-	02-26-71	15.76	(+)
*5-4144.5	NF LITTLE MAQUOKETA NEAR RICKARDSVILLE, IOWA.	LAT 423509, LONG 905120, NEAR NW CORNER SEC. 28, T.90 N., R.1 E., AT BRIDGE, 1 MILE NE OF RICKARDSVILLE.	21.6	1951-	02-26-71	7.35	1,040
5-4146	LITTLE MAQUOKETA R TR AT DUBUQUE, IOWA.	LAT 423233, LONG 904138, NEAR NW CORNER SEC.11, T.89 N., R.2 E., AT BRIDGE ON STATE HIGHWAY 386 NEAR NORTH CITY LIMITS OF DUBUQUE.	1.54	1951-	1971	A	(+)

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	GAGE HEIGHT (FEET)	DISCHARGE (CFS)
		MAQUOKETA RIVER BASIN					
5-4175.3	PLUM CR AT EARLVILLE, IOWA.	LAT 422813, LONG 911453, IN NE 1/4 SEC. 1, T.88 N., R.4 W., AT BRIDGE ON U.S. HIGHWAY 20, ABOUT 1.5 MILES SOUTHEAST OF EARLVILLE.	41.1	1966-	06-24-71	84.90	(+)
5-4175.9	KITTY CR NR LANGWORTHY, IOWA.	LAT 4212XX, LONG 9112XX, IN NW 1/4 SEC. 4, T.85 N., R.3 W., AT BRIDGE ON U.S. HIGHWAY 151, ABOUT 1 MILE NORTHEAST OF LANGWORTHY.	14.4	1966-	06-24-71	87.33	1,160
		WAPSIPINICON RIVER BASIN					
5-4206	LITTLE WAPSIPINICON TR NR RICEVILLE, IOWA.	LAT 4321XX, LONG 9229XX, NEAR S 1/4 CORNER SEC.27, T.99 N., R.14 W., AT CULVERT, 3.5 MILES EAST OF RICEVILLE.	0.90	1953-	10-09-70	3.97	101
5-4206.2	LITTLE WAPSIPINICON R NR ACME, IOWA.	LAT 4320XX, LONG 9229XX, AT N 1/4 CORNER SEC. 10, T.98 N., R.14 W., AT BRIDGE ON CO. ROAD D, 1 MILE NORTH OF ACME.	7.76	1953-	10-09-70	5.05	322
*5-4206.4	LITTLE WAPSIPINICON R AT ELMA, IOWA.	LAT 4314XX, LONG 9227XX, IN NW 1/4 SEC. 12, T.97 N., R.14 W., AT BRIDGE ON COUNTY ROAD A NEAR WEST CITY LIMITS OF ELMA.	37.3	1953-	10-09-70	9.27	1,400
5-4206.5	LITTLE WAPSIPINICON R NR NEW HAMPTON, IOWA.	LAT 4304XX, LONG 9224XX, IN NW 1/4 SEC. 9, T.95 N., R.13 W., AT BRIDGE ON U.S. HIGHWAY 18, 4 MILES WEST OF NEW HAMPTON.	95.0	1966-	10-09-70	87.26	2,600
5-4206.9	EF WAPSIPINICON R NR NEW HAMPTON, IOWA.	LAT 4305XX, LONG 9218XX, IN SE 1/4 SEC. 31, T.96 N., R.12 W., AT BRIDGE ON U.S. HIGHWAY 63, ABOUT 2 MILES NORTH OF NEW HAMPTON.	30.3	1966-	10-09-70	86.01	4,000
5-4208.5	LITTLE WAPSIPINICON R NR ORAN, IOWA.	LAT 4243XX, LONG 9202XX, IN NE 1/4 SEC. 8, T.91 N., R.10 W., AT BRIDGE ON STATE HIGHWAY 3, ABOUT 2 MILES NE OF ORAN.	94.1	1966-	06-24-71	88.35	2,100
5-4208.55	BUCK CR NR ORAN, IOWA.	LAT 4243XX, LONG 9208XX, IN NE 1/4 SEC. 10, T.91 N., R.11 W., AT BRIDGE ON STATE HIGHWAY 3, 2.5 MILES NW OF ORAN.	37.9	1966-	06-24-71	87.59	435
5-4211	PINE CR TR NR WINTHROP, IOWA.	LAT 4229XX, LONG 9147XX, IN SW 1/4 SEC. 27, T.89 N., R.8 W., AT CULVERT, 1.4 MILES NORTH OF U.S. HIGHWAY 20 AND 2.5 MILES NW OF WINTHROP.	0.334	1953-	06-24-71	5.36	87
5-4212	PINE CR NR WINTHROP, IOWA.	LAT 4228XX, LONG 9147XX, IN SW 1/4 SEC. 34, T.89 N., R.8 W., AT RR BRIDGE 500 FT ABOVE U.S. HIGHWAY 20 AND 2.5 MILES NW OF WINTHROP.	28.3	1950-	03-13-71	13.34	1,000
5-4213	PINE CR TR NO. 2 AT WINTHROP, IOWA.	LAT 4228XX, LONG 9144XX, AT N 1/4 CORNER SEC. 2, T.88 N., R.8 W., AT CULVERT ON U.S. HIGHWAY 20 NEAR WEST CITY LIMITS OF WINTHROP.	0.704	1953-	06-24-71	6.61	100
*5-4215.5	BUFFALO CR ABOVE WINTHROP, IOWA.	LAT 4230XX, LONG 9144XX, NEAR NE CORNER SEC. 25, T.89 N., R. 8 W., AT BRIDGE, 1.5 MILES NE OF WINTHROP.	68.2	1957-	03-22-71	17.60	1,900
5-4216	BUFFALO CR NR WINTHROP, IOWA.	LAT 4228XX, LONG 9143XX, IN NE 1/4 SEC. 1, T.88 N., R.8 W., AT BRIDGE ON U.S. HIGHWAY 20, ABOUT 1 MILE EAST OF WINTHROP.	71.4	1953-	03-22-71	88.19	1,600
5-4218.9	SILVER CR AT WELTON, IOWA.	LAT 4155XX, LONG 9036XX, IN NW 1/4 SEC. 15, T.82 N., R.3 E., AT BRIDGE ON U.S. HIGHWAY 61 AT NORTH EDGE OF WELTON.	9.03	1966-	07-13-71	88.34	3,110

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	GAGE HEIGHT (FEET)	DISCHARGE (CFS)
		IOWA RIVER BASIN					
*5-4484	WESTMAIN DRAINAGE DITCH 1 & 2 NR BRITT, IOWA.	LAT 4306XX, LONG 9347XX, IN SW 1/4 SEC. 27, T.96 N., R.25 W., AT BRIDGE ON U.S. HIGHWAY 18 NEAR EAST CITY LIMITS OF BRITT.	21.2	1966-	03-16-71	81.77	(+)
5-4486	EB IOWA R ABOVE HAYFIELD, IOWA.	LAT 4309XX, LONG 9341XX, NEAR S 1/4 CORNER SEC. 4, T.96 N., R.24 W., AT BRIDGE, 1.5 MILES SE OF HAYFIELD.	2.23	1953-	1970 06-10-71	A 2.08	<7 (+)
5-4487	EB IOWA R NR HAYFIELD, IOWA.	LAT 4311XX, LONG 9339XX, IN NW 1/4 SEC. 35, T.97 N., R.24 W., AT BRIDGE, 2 MILES EAST OF HAYFIELD.	7.94	1952-	03-30-71	11.27B	200
5-4488	EB IOWA R NR GARNER, IOWA.	LAT 4306XX, LONG 9337XX, NEAR CENTER SEC. 25, T.96 N., R.24 W., AT BRIDGE ON U.S. HIGHWAY 18, 1.2 MILES WEST OF GARNER.	45.1	1952-	03-31-71	9.93B	330
5-4489	EB IOWA R TR NR GARNER, IOWA.	LAT 4306XX, LONG 9340XX, NEAR CENTER SEC. 27, T.96 N., R.24 W., AT CULVERT ON U.S. HIGHWAY 18, 2.1 MILES WEST OF GARNER.	5.98	1952-	03-30-71	6.66B	100
5-4519.5	EB SALT CR NR CLUTIER, IOWA.	LAT 4205XX, LONG 9220XX, IN NE 1/4 SEC. 22, T.84 N., R.13 W., AT BRIDGE ON STATE HIGHWAY 318, ABOUT 3 MILES EAST OF CLUTIER.	20.9	1966-	02-19-71	85.87	(+)
5-4532	PRICE CR AT AMANA, IOWA.	LAT 4148XX, LONG 9153XX, IN SE 1/4 SEC. 22, T.81 N., R.9 W., AT BRIDGE ON STATE HIGHWAY 149, NEAR NORTH EDGE OF AMANA.	29.1	1966-	02-19-71	84.57	(+)
5-4536	RAPID CR BELOW MORSE, IOWA.	LAT 4144XX, LONG 9126XX, NEAR NE CORNER SEC. 21, T.80 N., R.5 W., AT BRIDGE, 1.5 MILES SE OF MORSE.	8.12	1951-	02-19-71	21.29B	490
5-4537	RAPID CR TR NO. 4 NR OASIS, IOWA.	LAT 4143XX, LONG 9125XX, NEAR S 1/4 CORNER SEC. 22, T.80 N., R.5 W., AT CULVERT, 2 MILES NW OF OASIS.	1.95	1951-	02-19-71	16.34B	120
5-4537.5	RAPID CR SW OF MORSE, IOWA.	LAT 4143XX, LONG 9126XX, IN W 1/2 SEC. 21, T.80 N., R.5 W., AT BRIDGE, 2 MILES SW OF MORSE.	15.2	1951-	02-19-71	25.15B	780
5-4538.5	RAPID CR TR NO. 3 NR OASIS, IOWA.	LAT 4142XX, LONG 9127XX, NEAR CENTER OF SEC. 29, T.80 N., R.5 W., AT BRIDGE, 3.5 MILES WEST OF OASIS.	1.62	1951-	06-01-71	20.64	225
5-4539	RAPID CR TR NR OASIS, IOWA.	LAT 4141XX, LONG 9127XX, NEAR SW CORNER SEC. 33, T.80 N., R.5 W., AT BRIDGE, 3 MILES SW OF OASIS.	.97	1951-	1970	A	<62
5-4539.5	RAPID CR TR NR IOWA CITY, IOWA.	LAT 4142XX, LONG 9128XX, IN NW 1/4 SEC. 31, T.80 N., R.5 W., AT BRIDGE, 4 MILES NE OF IOWA CITY.	3.43	1951-	1970	A	<66
*5-4551	OLD MANS CR NR IOWA CITY, IOWA.	LAT 413623, LONG 913656, IN NW 1/4 SEC. 36, T.79 N., R.7 W., AT BRIDGE, 3 MILES SW OF IOWA CITY.	201	1951-	02-19-71	11.33B	3,000C
5-4551.5	N ENGLISH R NR MONTEZUMA, IOWA.	LAT 4139XX, LONG 9233XX, IN SW 1/4 SEC. 13, T.79 N., R.15 W., AT BRIDGE ON U.S. HIGHWAY 63, 5 MILES NW OF MONTEZUMA.	34.0	1953-	03- -71	11.09B	700C
*5-4552	N ENGLISH R NR GUERNSEY, IOWA.	LAT 4138XX, LONG 9224XX, NEAR SW CORNER SEC. 17, T.79 N., R.13 W., AT BRIDGE, 2.25 MILES WEST OF GUERNSEY.	68.7	1953-	02-19-71	11.60B	1,200C

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		IOWA RIVER BASIN--CONTINUED					
5-4552.1	N ENGLISH R AT GUERNSEY, IOWA.	LAT 4138XX, LONG 9221XX, IN NW 1/4 SEC. 22, T.79 N., R.13 W., AT BRIDGE ON STATE HIGHWAY 21, ABOUT 1 MILE SW OF GUERNSEY.	81.5	1960, 1966-	02-19-71	83.86B	1,400C
5-4552.3	DEEP R AT DEEP RIVER, IOWA.	LAT 4135XX, LONG 9221XX, IN SW 1/4 SEC. 3, T.78 N., R.13 W., AT BRIDGE ON STATE HIGHWAY 21, 1 MILE NE OF DEEP RIVER.	30.5	1960, 1966-	02-19-71	80.06B	600
5-4552.8	S ENGLISH R TR NR BARNES CITY, IOWA.	LAT 4133XX, LONG 9228XX, NEAR NE CORNER SEC. 21, T.78 N., R.14 W., AT BRIDGE, 3 MILES NORTH OF BARNES CITY.	2.51	1953-	02-19-71	4.95	80
5-4553	S ENGLISH R NR BARNES CITY, IOWA.	LAT 4131XX, LONG 9228XX, NEAR NW CORNER SEC. 34, T.78 N., R.14 W., AT BRIDGE, 1 MILE NORTH OF BARNES, CITY.	11.5	1953-	02-19-71	11.35B	260C
5-4553.5	S ENGLISH R TR NO.2 NR MONTEZUMA, IOWA.	LAT 4134XX, LONG 9227XX, NEAR SW CORNER SEC. 11, T.78 N., R.14 W., AT BOX CULVERT, 4 MILES SE OF MONTEZUMA.	0.523	1953-	02-19-71	8.37B	20
5-4555.5	BULGERS RUN NR RIVERSIDE, IOWA.	LAT 4129XX, LONG 9138XX, IN SE 1/4 SEC. 11, T.77 N., R.7 W., AT BRIDGE ON STATE HIGHWAY 22, 2.5 MILES WEST OF RIVERSIDE.	6.31	1965-	02-19-71	86.05B	500C
5-4574.4	DEER CR NR CARPENTER, IOWA.	LAT 4325XX, LONG 9259XX, IN NE 1/4 SEC. 8, T.99 N., R.18 W., AT BRIDGE ON STATE HIGHWAY 105, 1.5 MILES EAST OF CARPENTER.	91.6	1966-	1971	A	(+)
5-4585.6	BEAVERDAM CR NR SHEFFIELD, IOWA.	LAT 4256XX, LONG 9312XX, IN NW 1/4 SEC. 27, T.94 N., R.20 W., AT BRIDGE ON U.S. HIGHWAY 65, 3 MILES NORTH OF SHEFFIELD.	123	1966-	06-07-71	55.32	1,500
5-4590.1	ELK CR AT KENSETT, IOWA.	LAT 4322XX, LONG 9313XX, IN NE 1/4 SEC. 28, T.99 N., R.20 W., AT BRIDGE ON U.S. HIGHWAY 65, ABOUT 1 MILE NORTH OF KENSETT.	58.1	1966-	1970 03-30-71	A 91.35	<260 1,000
5-4594.9	SPRING CR NR MASON CITY, IOWA.	LAT 431248, LONG 931238, IN SE 1/4 SEC. 16, T.97 N., R.20 W., AT BRIDGE ON U.S. HIGHWAY 65, ABOUT 4 MILES NORTH OF MASON CITY.	29.3	1966-	03-31-71	84.89	495
5-4601	WILLOW CR NR MASON CITY, IOWA.	LAT 4309XX, LONG 9316XX, IN NE 1/4 SEC. 12, T.96 N., R.21 W., AT BRIDGE ON U.S. HIGHWAY 18, ABOUT 3.5 MILES WEST OF MASON CITY.	78.6	1966-	03-17-71	90.75	880
5-4627.5	BEAVER CR TR NR APLINGTON, IOWA.	LAT 4235XX, LONG 9251XX, IN NW 1/4 SEC. 27, T.90 N., R.17 W., AT BRIDGE ON U.S. HIGHWAY 20, ABOUT 2 MILES EAST OF APLINGTON.	11.6	1966-	05-24-71	93.60	1,300
5-4630.9	BLACK HAWK CR AT GRUNDY CENTER, IOWA.	LAT 4222XX, LONG 9246XX, IN NW 1/4 SEC. 7, T.87 N., R.16 W., AT BRIDGE ON STATE HIGHWAY 14, AT NORTH EDGE OF GRUNDY CENTER.	56.9	1966-	05-24-71	85.74	1,080
5-4641.45	TWELVE MILE CR NR TRAER, IOWA.	LAT 4214XX, LONG 9228XX, IN SE 1/4 SEC. 27, T.86 N., R.14 W., AT BRIDGE ON U.S. HIGHWAY 63, 2.5 MILES NORTH OF TRAER.	43.8	1966-	03-14-71	86.00	(+)
5-4643.1	PRATT CR NR GARRISON, IOWA.	LAT 4211XX, LONG 9211XX, IN SE 1/4 SEC. 12, T.85 N., R.12 W., AT BRIDGE ON U.S. HIGHWAY 218, 3.5 MILES NW OF GARRISON.	23.4	1966-	1971	A	(+)
5-4643.18E	BLUE CR AT CENTER POINT, IOWA.	LAT 421244, LONG 914721, IN SW 1/4 SEC. 33, T.86 N., R.8 W., AT BRIDGE ON STATE HIGHWAY 150, 1.5 MILES NORTH OF CENTER POINT.	17.6	1966-	1971	A	<1,540

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	GAGE HEIGHT (FEET)	DISCHARGE (CFS)
		IOWA RIVER BASIN--CONTINUED					
5-4645.6	PRAIRIE CR AT BLAIRSTOWN, IOWA.	LAT 415442, LONG 920503, IN SW 1/4 SEC. 13, T.82 N., R.11 W., AT BRIDGE ON STATE HIGHWAY 92, AT NORTH EDGE OF BLAIRSTOWN.	87.0	1966-	02-20-71	84.47	(+)
5-4648.8	OTTER CR AT WILTON JUNCTION, IOWA.	LAT 413617, LONG 910208, IN NE 1/4 SEC. 35, T.79 N., R.2 W., AT BRIDGE ON STATE HIGHWAY 38, ABOUT 1.5 MILES NW OF WILTON JUNCTION.	10.7	1966-	06-20-71	86.46	1,240
5-4651.5	NF LONG CR AT AINSWORTH, IOWA.	LAT 4117XX, LONG 9132XX, IN SW 1/4 SEC. 22, T.75 N., R.6 W., AT BRIDGE ON U.S. HIGHWAY 218, 1 MILE SE OF AINSWORTH.	30.2	1951, 1965-	03-03-71	87.05	430
		SKUNK RIVER BASIN					
5-4698.6	MUD LAKE DRAINAGE DITCH 71 IN JEWELL, IOWA.	LAT 4219XX, LONG 9338XX, IN SW 1/4 SEC. 27, T.87 N., R.24 W., AT BRIDGE ON U.S. HIGHWAY 69 IN JEWELL.	65.4	1966-	02-18-71	90.13B	(+)
5-4699.9	KEIGLEY BR NR STORY CITY, IOWA.	LAT 4209XX, LONG 9337XX, IN NW 1/4 SEC. 26, T.85 N., R.24 W., AT BRIDGE ON U.S. HIGHWAY 69, ABOUT 3 MILES SOUTH OF STORY CITY.	31.0	1966-	02-18-71	90.05B	555
5-4720.9	N SKUNK R NR BAXTER, IOWA.	LAT 4149XX, LONG 9304XX, IN NE 1/4 SEC. 21, T.81 N., R.19 W., AT BRIDGE ON STATE HIGHWAY 223, ABOUT 4.5 MILES EAST OF BAXTER.	52.2	1966-	02-19-71	79.14B	(+)
5-4722.9	SUGAR CR NR SEARSBORO, IOWA.	LAT 4134XX, LONG 9244XX, IN SE 1/4 SEC. 7, T.78 N., R.16 W., AT BRIDGE ON STATE HIGHWAY 225, 1.8 MILES WEST OF SEARSBORO.	52.7	1966-	02-19-71	90.87B	700
5-4723.9	MIDDLE CR NR LACEY, IOWA.	LAT 4125XX, LONG 9239XX, IN NE 1/4 SEC. 1, T.76 N., R.16 W., AT BRIDGE ON U.S. HIGHWAY 63, ABOUT 1.5 MILES NW OF LACEY.	23.0	1966-	02-19-71	86.32B	350
5-4724.45	ROCK CR AT SIGOURNEY, IOWA.	LAT 412012, LONG 921320, IN NE 1/4 SEC. 3, T.75 N., R.12 W., AT BRIDGE ON STATE HIGHWAY 92, NEAR WEST EDGE EDGE OF SIGOURNEY.	26.3	1966-	05-19-71	88.47	660
*5-4733	CEDAR CR NR BATAVIA, IOWA.	LAT 4101XX, LONG 9207XX, IN SW 1/4 SEC. 27, T.72 N., R.11 W., AT BRIDGE ON U.S. HIGHWAY 34, 2.5 MILES NE OF BATAVIA.	252	1966-	02-18-71	89.83B	4,700
		DES MOINES RIVER BASIN					
5-4809.3	WHITE FOX CR AT CLARION, IOWA.	LAT 4244XX, LONG 9342XX, IN NW 1/4 SEC. 5, T.91 N., R.24 W., AT BRIDGE ON STATE HIGHWAY 3, 1.5 MILES EAST OF CLARION.	13.3	1966-	03-16-71	89.57	(+)
5-4815.1	BLUFF CR AT PILOT MOUND, IOWA.	LAT 4210XX, LONG 9401XX, IN NW 1/4 SEC. 20, T.85 N., R.27 W., AT BRIDGE ON STATE HIGHWAY 329, AT NW EDGE OF PILOT MOUND.	23.5	1966-	02-18-71	85.55B	195
5-4816.8	BEAVER CR AT BEAVER, IOWA.	LAT 4202XX, LONG 9409XX, IN NE 1/4 SEC. 6, T.83 N., R.28 W., AT BRIDGE ON U.S. HIGHWAY 30, AT SW EDGE OF BEAVER.	38.5	1966-	02-19-71	88.94B	320
5-4816.9	W BEAVER CR AT GRAND JUNCTION, IOWA.	LAT 4202XX, LONG 9413XX, IN NE 1/4 SEC. 3, T.83 N., R.29 W., AT BRIDGE ON U.S. HIGHWAY 30, NEAR EAST EDGE OF GRAND JUNCTION.	12.6	1966-	02-19-71	87.47B	105
5-4826	HARDIN CR AT FARNHAMVILLE, IOWA.	LAT 421601, LONG 942510, NEAR NE CORNER SEC. 14, T.86 N., R.31 W., AT BRIDGE ON STATE HIGHWAY 175, NEAR WEST CITY LIMITS OF FARNHAMVILLE.	43.7	1952-	03-12-71	9.38B	480

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	GAGE HEIGHT (FEET)	DISCHARGE (CFS)
		DES MOINES RIVER BASIN--CONTINUED					
5-4828	HAPPY RUN AT CHURDAN, IOWA.	LAT 421[illegible]XX, LONG 9430XX, NEAR SW CORNER SEC. 17, T.85 N., R.31 W., AT BRIDGE NEAR WEST CITY LIMITS OF CHURDAN.	7.58	1952-	03-12-71	6.74	(+)
5-4829	HARDIN CR NR FARLIN, IOWA.	LAT 4206XX, LONG 9426XX, NEAR N 1/4 CORNER SEC. 14, T.84 N., R.31 W., AT BRIDGE, 1.5 MILES NE OF FARLIN.	191	1951-	03-12-71	12.37B	1,110
5-4833.188	RUSHY FORK CR NR TEMPLETON, IOWA.	LAT 4157XX, LONG 9453XX, IN NW 1/4 SEC. 1, T.82 N., R.35 W., AT BRIDGE ON U.S. HIGHWAY 71, ABOUT 4 MILES NE OF TEMPLETON.	45.0	1966-	03-13-71	87.78B	(+)
5-4833.49M	RACCOON R TR AT CARROLL, IOWA.	LAT 4203XX, LONG 9453XX, IN NW 1/4 SEC. 36, T.84 N., R.35 W., AT BRIDGE ON U.S. HIGHWAY 71, ABOUT 1.5 MILES SOUTH OF CARROLL.	6.58	1966-	03-13-71	89.64B	(+)
5-4873	S OTTER CR BELOW HIGHWAY 34 NR WOODBURN, IOWA.	LAT 4102XX, LONG 9339XX, NEAR SE CORNER SEC. 18, T.72 N., R.24 W., AT BRIDGE BELOW U.S. HIGHWAY 34, 3 MILES NW OF WOODBURN.	2.26	1953-	10-09-70	7.23	(+)
5-4873.5	S OTTER CR TP NR WOODBURN, IOWA.	LAT 4103XX, LONG 9336XX, NEAR SW CORNER SEC. 11, T.72 N., R.24 W., AT BRIDGE, 2 MILES NORTH OF WOODBURN.	0.71	1955-	1971	A	(+)
5-4876	S WHITE BREAST CR NR OSCEOLA, IOWA.	LAT 405736, LONG 934128, NEAR SW CORNER SEC. 12, T.71 N., R.25 W., AT BRIDGE, 6 MILES SE OF OSCEOLA.	28.0	1953-	02-19-71	10.59B	500C
*5-4878	WHITE BREAST CR AT LUCAS, IOWA.	LAT 4101XX, LONG 9328XX, IN NE 1/4 SEC. 23, T.72 N., R.23 W., AT BRIDGE ON U.S. HIGHWAY 65, NEAR SOUTH CITY LIMITS OF LUCAS.	128	1953-	10-09-70	12.78	1,450
5-4886.2	COAL CR NR ALBIA, IOWA.	LAT 4101XX, LONG 9251XX, IN SW 1/4 SEC. 20, T.72 N., R.17 W., AT BRIDGE ON U.S. HIGHWAY 34, 2 MILES SW OF ALBIA.	13.5	1966-	02-17-71	77.38B	(+)
5-4891.5	L MUCHAKINOCK CR AT OSKALOOSA, IOWA.	LAT 4116XX, LONG 9238XX, IN SE 1/4 SEC. 25, T.75 N., R.16 W., AT BRIDGE ON STATE HIGHWAY 137, AT SOUTH EDGE OF OSKALOOSA.	9.12	1966-	10-09-71	87.31	600
5-4893.5	S AVERY CR NR BLAKESBURG, IOWA.	LAT 4101XX, LONG 9237XX, IN SE 1/4 SEC. 19, T.72 N., R.15 W., AT BRIDGE ON U.S. HIGHWAY 34, ABOUT 3.5 MILES NORTH OF BLAKESBURG.	33.1	1965-	1971	A	(+)
5-4894.9	BEAR CR AT OTTUMWA, IOWA.	LAT 410043, LONG 922754, IN NW 1/4 SEC. 27, T.72 N., R.14 W., AT BRIDGE ON U.S. HIGHWAY 34, NEAR WEST EDGE OF OTTUMWA.	22.9	1965-	1971	A	(+)
		FOX RIVER BASIN					
5-4941	S FOX CR TR NR WEST GROVE, IOWA.	LAT 4044XX, LONG 9238XX, NEAR S 1/4 CORNER SEC. 31, T.69 N., R.15 W., AT CULVERT ON STATE HIGHWAY 2, 3.5 MILES WEST OF WEST GROVE.	0.55	1953-	1971	A	(+)
5-4941.1	S FOX CR NR WEST GROVE, IOWA.	LAT 4044XX, LONG 9236XX, IN SE 1/4 SEC. 32, T.69 N., R.15 W., AT BRIDGE ON STATE HIGHWAY 2, 2.4 MILES WEST OF WEST GROVE.	12.2	1965-	1971	A	(+)
		WYACONDA RIVER BASIN					
5-4956	S WYACONDA R NR WEST GROVE, IOWA.	LAT 4043XX, LONG 9230XX, NEAR NW CORNER SEC. 5, T.68 N., R.14 W., AT BRIDGE, 2.5 MILES EAST OF WEST GROVE.	4.69	1953-	03-11-71	7.38	200

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	GAGE HEIGHT (FEET)	DISCHARGE (CFS)
		BIG SIOUX RIVER BASIN					
6-4834.1	OTTER CR NORTH OF SIBLEY, IOWA.	LAT 4328XX, LONG 9544XX, AT NE CORNER SEC. 25, T.100 N., R.42 W., AT BRIDGE ON COUNTY ROAD H, 4 MILES NORTH OF SIBLEY.	11.9	1952-	02-19-71	6.56B	115
6-4834.2	SCHUTTE CR NR SIBLEY, IOWA.	LAT 4328XX, LONG 9547XX, NEAR NW CORNER SEC. 23, T.100 N., R.42 W., AT CULVERT, 6 MILES NW OF SIBLEY.	1.43	1952-	02-19-71	4.11B	55
6-4834.3	OTTER CR AT SIBLEY, IOWA.	LAT 4324XX, LONG 9546XX, NEAR N 1/4 CORNER SEC. 14, T.99 N., R.42 W., AT BRIDGE, 1 MILE NW OF SIBLEY.	29.9	1952-	02-19-71	6.61B	160
6-4834.4	DAWSON CR NR SIBLEY, IOWA.	LAT 4323XX, LONG 9543XX, NEAR NW CORNER SEC. 20, T.99 N., R.41 W., AT CULVERT, 2 MILES SE OF SIBLEY ON COUNTY ROAD D.	4.35	1952-	02-19-71	5.56B	80
6-4834.5	WAGNER CR NR ASHTON, IOWA.	LAT 4321XX, LONG 9546XX, ON SOUTH LINE SEC. 35, T.99 N., R.42 W., AT BRIDGE, 3 MILES NE OF ASHTON.	7.09	1952-	02-19-71	3.55B	145
*6-4834.6	OTTER CR NR ASHTON, IOWA.	LAT 4320XX, LONG 9546XX, IN SE 1/4 SEC. 2, T.98 N., R.42 W., AT BRIDGE, 2 MILES NE OF ASHTON.	88.0	1952-	06-06-71	8.00	660
6-4834.95	BUR OAK CR NR PERKINS, IOWA.	LAT 431443, LONG 961038, IN SE 1/4 SEC. 5, T.97 N., R.45 W., AT BRIDGE ON U.S. HIGHWAY 75, 4 MILES NORTH OF PERKINS.	30.9	1966-	06-06-71	86.66	(+)
		PERRY CREEK BASIN					
6-5998	PERRY CR NR MERRILL, IOWA.	LAT 424316, LONG 962033, IN NW 1/4 SEC. 12, T.91 N., R.47 W., AT BRIDGE ON COUNTY ROAD M, 5 MILES WEST OF MERRILL.	8.17	1953-	02-18-71	9.52B	145
6-5999.5	PERRY CR NR HINTON, IOWA.	LAT 423757, LONG 962213, NEAR W 1/4 CORNER SEC. 11, T.90 N., R.47 W., AT BRIDGE ON STATE HIGHWAY 7, 4 MILES WEST OF HINTON.	30.8	1953-	1971	A	(+)
		FLOYD RIVER BASIN					
6-6013.3	L FLOYD R NR SANBORN, IOWA.	LAT 431110, LONG 954330, IN NE 1/4 SEC. 31, T.97 N., R.41 W., AT BRIDGE ON U.S. HIGHWAY 18, 3.5 MILES WEST OF SANBORN.	8.44	1966-	06-05-71	87.15	(+)
6-6019.8	WILLOW CR AT HOSPERS, IOWA.	LAT 430438, LONG 955416, IN NE 1/4 SEC. 3, T.95 N., R.43 W., AT BRIDGE ON STATE HIGHWAY 60, AT NORTH EDGE OF HOSPERS.	37.0	1966-	06-05-71	86.54	(+)
		MONONA-HARRISON DITCH BASIN					
6-6014.9	BIG WHISKEY SLOUGH NR REMSEN, IOWA.	LAT 424RXX, LONG 9553XX, IN NW 1/4 SEC. 11, T.92 N., R.43 W., AT BRIDGE ON STATE HIGHWAY 3, 4.2 MILES EAST OF REMSEN.	12.0	1966-	02-18-71	92.59B	(+)
6-6021.9	ELLIOT CR AT LAWTON, IOWA.	LAT 4228XX, LONG 9611XX, IN NW 1/4 SEC. 3, T.88 N., R.46 W., AT BRIDGE ON U.S. HIGHWAY 20, AT WEST EDGE OF LAWTON.	34.8	1966-	1971	A	(+)
6-6022.4	BIG WHISKEY CR NR LAWTON, IOWA.	LAT 4228XX, LONG 9615XX, IN NW 1/4 SEC. 6, T.88 N., R.46 W., AT BRIDGE ON U.S. HIGHWAY 20, 3.5 MILES WEST OF LAWTON.	51.3	1966-	1971	A	(+)

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	GAGE HEIGHT (FEET)	DISCHARGE (CFS)
		LITTLE SIOUX RIVER BASIN					
6-6045.1	OCHEYEDAN R NR OCHEYEDAN, IOWA.	LAT 4326XX, LONG 9537XX, IN NE 1/4 SEC. 6, T.99 N., R.40 W., AT BRIDGE ON STATE HIGHWAY 9, 4 MILES NW OF OCHEYEDAN.	73.5	1966-	1971	A	(+)
6-6053.4	PRAIRIE CR NR SPENCER, IOWA.	LAT 430516, LONG 950940, IN SE 1/4 SEC. 36, T.96 N., R.37 W., AT BRIDGE ON U.S. HIGHWAY 71, ABOUT 4 MILES SOUTH OF SPENCER.	22.3	1966-	1970 07-04-71	A 90.77	<110 2,200
6-6057.5	WILLOW CR NR CORNELL, IOWA.	LAT 4243XX, LONG 9510XX, IN SE 1/4 SEC. 12, T.94 N., R.37 W., AT BRIDGE ON U.S. HIGHWAY 71, 2 MILES NW OF CORNELL.	78.6	1966-	1970 06-06-71	A 89.57	<203 1,900
6-6058.9	WATERMAN CR AT HARTLEY, IOWA.	LAT 431106, LONG 953043, IN NE 1/4 SEC. 36, T.97 N., R.40 W., AT BRIDGE ON U.S. HIGHWAY 18, 1.8 MILES WEST OF HARTLEY.	28.7	1966-	06-05-71	86.95	(+)
6-6067.9	MAPLE CR NR ALTA, IOWA.	LAT 4245XX, LONG 9522XX, IN NE 1/4 SEC. 31, T.92 N., R.38 W., AT BRIDGE ON STATE HIGHWAY 3, 6 MILES NW OF ALTA.	15.5	1966-	06-06-71	88.25	1,150
6-6071.97	WILSEY CR AT MAPLETON, IOWA.	LAT 4210XX, LONG 9545XX, IN SE 1/4 SEC. 14, T.85 N., R.43 W., AT BRIDGE ON STATE HIGHWAY 141, 1.2 MILES NW OF MAPLETON.	18.4	1966-	02-18-71	79.05B	(+)
		SOLDIER RIVER BASIN					
6-6084.5	JORDAN CR AT MOORHEAD, IOWA.	LAT 4155XX, LONG 9552XX, IN NW 1/4 SEC. 16, T.82 N., R.43 W., AT BRIDGE ON STATE HIGHWAY 183, AT SW CORNER OF MOORHEAD.	30.1	1966-	02-18-71	79.2B	(+)
		BOYER RIVER BASIN					
6-6095.6	WILLOW CR NR SOLDIER, IOWA.	LAT 4155XX, LONG 9542XX, IN NW 1/4 SEC. 14, T.82 N., R.42 W., AT BRIDGE ON STATE HIGHWAY 37, ABOUT 6 MILES SE OF SOLDIER.	29.1	1966-	02-18-71	70.49B	(+)
		MOSQUITO CREEK BASIN					
6-6105.1	MOSER CR NR EARLING, IOWA.	LAT 4147XX, LONG 9527XX, IN NE 1/4 SEC. 1, T.80 N., R.40 W., AT BRIDGE ON STATE HIGHWAY 37, ABOUT 1.5 MILES WEST OF EARLING.	21.6	1966-	1971	A	(+)
*6-6106	MOSQUITO CR AT NEOLA, IOWA.	LAT 412709, LONG 953637, IN NE 1/4 SEC. 19, T.77 N., R.42 W., AT BRIDGE ON COUNTY ROAD S, 0.5 MILE SOUTH OF NEOLA.	131	1966-	1971	A	(+)
		NISHNABOTNA RIVER BASIN					
6-8074.18	GRAYBILL CR NR CARSON, IOWA.	LAT 4114XX, LONG 9523XX, IN NW 1/4 SEC. 7, T.74 N., R.39 W., AT BRIDGE ON STATE HIGHWAY 92, 2 MILES EAST OF CARSON.	45.9	1966-	1971	A	(+)
6-8074.7	INDIAN CR NR EMERSON, IOWA.	LAT 4102XX, LONG 9523XX, IN NW 1/4 SEC. 19, T.72 N., R.39 W., AT BRIDGE ON U.S. HIGHWAY 34, 1 MILE EAST OF EMERSON.	37.3	1966-	1971	A	<500
6-8077.2	M SILVER CR NR AVOCA, IOWA.	LAT 412833, LONG 952806, NEAR N 1/4 CORNER SEC. 17, T.77 N., R.40 W., AT BRIDGE ON STATE HIGHWAY 83, 7 MILES WEST OF AVOCA.	3.21	1955-	02-19-71	7.42B	(+)
6-8077.6	M SILVER CR NR OAKLAND, IOWA.	LAT 411928, LONG 953319, NEAR E 1/4 CORNER SEC. 4, T.75 N., R.41 W., AT BRIDGE, 0.5 MILES NW OF OAKLAND.	25.7	1953-	06-06-71	10.10	1,120

ANNUAL MAXIMUM DISCHARGE AT CREST-STAGE PARTIAL-RECORD STATIONS DURING WATER YEAR 1971--CONTINUED

STATION NO.	STATION NAME	LOCATION	DRAINAGE AREA (SQ MI)	PERIOD OF RECORD	ANNUAL MAXIMUM DATE	ANNUAL MAXIMUM GAGE HEIGHT (FEET)	ANNUAL MAXIMUM DISCHARGE (CFS)
		NISHNABOTNA RIVER BASIN--CONTINUED					
6-8077.8	M SILVER CR AT TREYNOR, IOWA.	LAT 411437, LONG 953653, NEAR NE CORNER SEC. 1, T.74 N., R.42 W., AT BRIDGE ON COUNTY ROAD F, 1 MILE NORTH OF TREYNOR.	42.7	1953-	05-10-71	7.51	900
6-8088.8	BLUEGRASS CR AT AUDUBON, IOWA.	LAT 4143XX, LONG 9456XX, IN NW 1/4 SEC. 28, T.80 N., R.35 W., AT BRIDGE ON U.S. HIGHWAY 71, NEAR SOUTH EDGE OF AUDUBON.	15.4	1966-	1971	A	(+)
		TARKIO RIVER BASIN					
6-8117.6	TARKIO R NR ELLIOT, IOWA.	LAT 4106XX, LONG 9506XX, NEAR NE CORNER SEC. 28, T.73 N., R.37 W., AT BRIDGE, 4.5 MILES SE OF ELLIOT.	10.7	1952-	1971	A	(+)
6-8119	E TARKIO CR NR STANTON, IOWA.	LAT 4105XX, LONG 9506XX, IN W 1/2 SEC. 34, T.73 N., R.37 W., AT BRIDGE, 7 MILES NORTH OF STANTON.	4.66	1952-	1971	A	(+)
6-8118.2	TARKIO R TR NR STANTON, IOWA.	LAT 4103XX, LONG 9506XX, NEAR NE CORNER SEC. 16, T.72 N., R.37 W., AT BOX CULVERT, 4 MILES NORTH OF STANTON.	0.67	1952-	1971	A	(+)
6-8118.75	SNAKE CR NR YORKTOWN, IOWA.	LAT 4045XX, LONG 9508XX, IN NW 1/4 SEC. 32, T.69 N., R.37 W., AT BRIDGE ON STATE HIGHWAY 2, 1.5 MILES NE OF YORKTOWN.	9.10	1966-	1971	A	(+)
		NODAWAY RIVER BASIN					
6-8162.9	W NODAWAY R AT MASSENA, IOWA.	LAT 4115XX, LONG 9445XX, IN SE 1/4 SEC. 33, T.75 N., R.34 W., AT BRIDGE ON STATE HIGHWAY 148, AT SE CORNER OF MASSENA.	23.4	1966-	1971	A	(+)
		PLATTE RIVER BASIN					
6-8185.98	PLATTE R NR STRINGTOWN, IOWA.	LAT 4059XX, LONG 9430XX, IN SE 1/4 SEC. 2, T.71 N., R.32 W., AT BRIDGE ON U.S. HIGHWAY 34, 3.8 MILES EAST OF STRINGTOWN.	51.7	1966-	05-23-71	91.59	(+)
6-8191.1	MB 102 R NR GRAVITY, IOWA.	LAT 4050XX, LONG 9444XX, IN SE 1/4 SEC. 27, T.70 N., R.34 W., AT BRIDGE ON STATE HIGHWAY 148, 4.8 MILES NORTH OF GRAVITY.	33.5	1966-	1971	A	(+)
		CHARITON RIVER BASIN					
6-9039.9	COOPER CR AT CENTERVILLE, IOWA.	LAT 404021, LONG 925136, IN NW 1/4 SEC. 30, T.69 N., R.17 W., AT BRIDGE ON STATE HIGHWAY 5, AT NORTH EDGE OF CENTERVILLE.	47.8	1966-	10-09-70	74.47	2,400

* Also a low-flow partial-record station
\+ Discharge not determined
A Peak stage did not reach bottom of gage
B Ice affected
C Discharge estimated

Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table. Measurements of peak flow are designated by a dagger (+).

Discharge measurements made at miscellaneous sites during water year 1971

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Wisconsin River basin						
Wisconsin River	Mississippi River	NE1/4 sec.14, T.6 N., R.6 W., at bridge on U.S. Highway 18 at Bridgeport, Wisconsin.	11,700	1965-66 1969-70	3-31-71 4-28-71	14,900 14,000
Mississippi River Main Stem						
Mississippi River		NE1/4 sec.17, T.92 N., R.2 W. at lock and dam No. 10 at Guttenberg, Iowa.	79,200	1970	3-31-71	81,900
Iowa River basin						
Spring Creek	Cedar River	NE1/4 sec.13, T.97 N., R.17 W., Mitchell County, at bridge on county highway, 1 mile southwest of Orchard.	22.8	1962-68	6-17-70 7-24-70 8-24-70 5- 3-71 6-16-71 7-27-71 9- 8-71	10 6.2 6.2 16 12 9.1 6.1
Iowa River	Mississippi River	NE1/4 sec.19, T.82 N., R.13 W., at bridge on county road 1 mile south of Chelsea, Iowa.	2,076	-	10-14-70	1,910
Des Moines River basin						
West Buttrick Creek	Buttrick Creek	E1/2 sec.12, T.87 N., R.30 W., Webster County, at bridge on county highway, at east edge of Callender.	11.4	-	8- 2-71	.035

Supplemental low-flow measurements

The following low-flow measurements were made during water year 1971. They supplement measurements made at low-flow partial-record sites during the same period. Records of chemical analyses and water temperatures are published in Part 2, Periodic and Miscellaneous Water-Quality Records, of this report.

Supplemental measurements made during water year 1971.

Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
				Date	Discharge (cfs)
Iowa River basin					
West Branch Iowa River south of Britt, Iowa	NW 1/4 Sec.12, T.95 N., R.25 W., at bridge 3 miles southeast of Britt.	90.8		10-13-70	6.4
West Branch Iowa River near Goodell, Iowa	NW 1/4 Sec.33, T.94 N., R.24 W., at bridge on county road B 63, 3.5 miles west of Goodell.	128		10-13-70	10
West Branch Iowa River at Belmond, Iowa	NW 1/4 Sec.19, T.93 N., R.23 W., at bridge on U.S. Highway 69 near north edge of Belmond.	149		10-13-70	18
East Branch Iowa River near Belmond, Iowa	NW 1/4 Sec.18, T.93 N., R.23 W., at bridge 2 miles north of Belmond.	194		10-13-70	22
Iowa River near Alden, Iowa	NE 1/4 Sec.1, T.89 N., R.22 W., at bridge 2.5 miles northwest of Alden.	615		10-14-70	134
Iowa River at Steamboat Rock, Iowa	NW 1/4 Sec.28, T.88 N., R.19 W., at bridge on county road D 35 in Steamboat Rock.	746		10-14-70	242
Boyer River basin					
Boyer River near Wall Lake, Iowa	SE 1/4 Sec.27, T.87 N., R.37 W., Sac County, at bridge on U.S. Highway 71, 3.5 miles northwest of Wall Lake	132		8-17-71	5.8
Boyer River at Brogan, Iowa	NE 1/4 Sec.6, T.85 N., R.37 W., Crawford County, at bridge at Brogan, Iowa	210		8-17-71	8.0
Boyer River near Boyer, Iowa	NW 1/4 Sec.23, T.85 N., R.38 W., Crawford County, at bridge 1 mile south of Boyer.	260		8-17-71	10
Boyer River above Otter Cr. at Deloit, Iowa	SE 1/4 Sec.7, T.84 N., R.38 W., Crawford County, at bridge at southeast edge of Deloit.	290		8-17-71	9.8
Otter Creek at Deloit, Iowa	SE 1/4 Sec.12, T.84 N., R.39 W., Crawford County, at bridge at west edge of Deloit.	45.0		8-17-71	1.3
Buffalo Creek near Denison, Iowa	SE 1/4 Sec.34, T.84 N., R.39 W., Crawford County, at bridge on State Highway 4, 2 miles north of Denison.	31.6		8-17-71	0.11
Paradise Creek at Dow City, Iowa	NW 1/4 Sec.3, T.82 N., R.40 W., Crawford County, at bridge, 1 mile north of Dow City.	37.7		8-17-71	0.10
Boyer River near Dow City, Iowa	SW 1/4 Sec.8, T.82 N., R.40 W., Crawford County,at bridge 2 miles southwest of Dow City.	628		8-17-71	21
Mill Creek near Dunlap, Iowa	NW 1/4 Sec.21, T.81 N., R.41 W., Harrison County, at bridge on U.S. Highway 30 3 miles southwest of Dunlap.	37.4		8-17-71	0.07
Boyer River near Dunlap, Iowa	SE 1/4 Sec.20, T.81 N., R.41 W., Harrison County, at bridge on U.S. Highway 30, 3.5 miles southwest of Dunlap.	732		8-17-71	25
Mud Creek near Woodbine, Iowa	SW 1/4 Sec.31, T.81 N., R.41 W., Harrison County, at bridge on U.S. Highway 30, 3 miles northeast of Woodbine.	12.2		8-17-71	0
Picayune Creek near Woodbine, Iowa	NE 1/4 Sec.13, T.80 N., R.42 W., Harrison County, at bridge 1 mile northeast of Woodbine.	44.8		8-17-71	0.18
Boyer River at Woodbine, Iowa	SE 1/4 Sec.14, T.80 N., R.42 W., Harrison County, at bridge on U.S. Highway 30 in Woodbine	811		8-17-71	31

Supplemental measurements made during water year 1971--Continued

Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
				Date	Discharge (cfs)
Boyer River basin--Continued					
Sixmile Creek near Logan, Iowa	SW 1/4 Sec.3, T.79 N., R.42 W., Harrison County at bridge on U.S. Highway 30, 4 miles northeast of Logan.	19.8		8-17-71	0.33
Grand River basin					
Marvel Creek near Greenfield, Iowa	W 1/2 Sec.7, T.75 N., R.30 W., Adair County, at bridge on county highway, 5 miles east of Greenfield.	11.0		9-20-71	.36
Thompson River near Stanzel, Iowa	SE 1/4 Sec.8, T.75 N., R.30 W., Adair County at bridge on U.S. Highway 92, 4 miles southwest of Stanzel.	33.2		9-20-71	.12
Nine Mile Creek at Hebron, Iowa	SE 1/4 Sec.34, T.75 N., R.30 W., Adair County, at bridge on county highway P39 1 mile southeast of Hebron.	37.5		9-20-71	.035
West Branch Creek near Macksburg, Iowa	NE 1/4 Sec.4, T.73 N., R.29 W., Union County, at bridge on county highway P53, 5 miles southwest of Macksburg.	28.8		9-20-71	0
Thompson River near Lorimor, Iowa	E 1/2 Sec.11, T.73 N., R.29 W., Union County, at bridge on county highway H17 5 miles west of Lorimor.	130		9-20-71	.40
Three Mile Creek above Afton, Iowa	SE 1/4 Sec.30, T.73 N., R.29 W., Union County, at bridge on county highway H33, 5 miles northwest of Afton.	32.6		9-20-71	.12
Four Mile Creek near Thayer, Iowa	N 1/2 Sec.2, T.71 N., R.28 W., Union County at bridge on county highway, 3 miles south of Thayer.	32.8		9-21-71	.021
Twelve Mile Creek at Afton, Iowa	SE 1/4 Sec.20, T.72 N., R.29 W., Union County, at bridge on U.S. Highway 169, 1 mile south of Afton.	40.1		9-21-71	.040
Twelve Mile Creek near Hopeville, Iowa	W 1/2 Sec.36, T.71 N., R.28 W., Union County, at bridge on county highway, 4 miles southwest of Hopeville.	77.2		9-21-71	.063
Thompson River near Hopeville, Iowa	Center Sec.36, T.71 N., R.28 W., Union County, at bridge on county highway, 0.1 mile upstream from Twelve Mile Creek and 4 miles southwest of Hopeville.	313		9-21-71	1.6
Sand Creek at Westerville, Iowa	S 1/2 Sec.21, T.70 N., R.27 W., Decatur County, at bridge on county highway R15, 0.5 mile west of Westerville.	32.3		9-20-71	0
Long Creek above Van Wert, Iowa	NW 1/4 Sec.9, T.70 N., R.26 W., Decatur County, at bridge on county highway J14, 4 miles northwest of Van Wert.	58.4		9-20-71	0
Thompson River near Decatur City, Iowa	SW 1/4 Sec.30, T.69 N., R.26 W., Decatur County, at bridge on county highway, 3.5 miles west of Decatur City.	597		9-20-71	5.4
Elk Creek above West Elk Creek near Decatur City, Iowa	S 1/2 Sec.34, T.69 N., R.27 W., Decatur County at bridge on State Highway 2, 5.5 miles southwest of Decatur City.	23.7		9-20-71	0
Weldon River near LeRoy, Iowa	NW 1/4 Sec.21, T.70 N., R.24 W., at bridge on county highway, 2.5 miles southwest of LeRoy.	20.8		9-20-71	0
Jonathan Creek near Leon, Iowa	SE 1/4 Sec.20, T.69 N., R.24 W., at mouth, 6 miles east of Leon.	24.5		9-20-71	.021
Brush Creek near Leon, Iowa	SW 1/4 Sec.32, T.69 N., R.24 W., on county highway 5 miles southeast of Leon.	16		9-20-71	0

Supplemental measurements made during water year 1971--Continued

Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
				Date	Discharge (cfs)
Grand River basin--Continued					
Steel Creek near Garden Grove, Ia.	NW 1/4 Sec.36, T.69 N., R.24 W., 6 miles south of Garden Grove.	36.4		9-20-71	.035
Steel Creek near Lineville, Iowa	SW 1/4 Sec.2, T.67 N., R.24 W., on county highway "R", 5 miles northwest of Lineville.	56.9		9-20-71	.11
Weldon River near Lineville, Iowa	NE 1/4 Sec.10, T.67 N., R.24 W., on county highway "L", 3.5 miles northwest of Lineville.	174		9-20-71	.36
Caleb Creek near Clio, Iowa	NE 1/4 Sec.6, T.67 N., R.23 W., on county highway, 5 miles west of Clio.	37.0		9-21-71	.057
Caleb Creek near Lineville, Iowa	NE 1/4 Sec.14, T.67 N., R.24 W., on county highway "L", 3.5 miles northwest of Lineville.	49.0		9-21-71	.15
Lick Branch near Pleasanton, Iowa	SE 1/4 Sec.17, T.67 N., R.24 W., on county highway "E", 7 miles northeast of Pleasanton.	11.0		9-21-71	0
Unnamed tributary below gaging station on Weldon River, Iowa	NE 1/4 NE 1/4 Sec.17, T.68 N., R.24 W., Decatur County, 200 ft. downstream from county highway A, 6.5 miles southeast of Leon.	--		9-20-71	.035

DISCONTINUED GAGING STATIONS

The following gaging stations have been discontinued in Iowa. Continuous daily streamflow were collected for the period of record shown for each station.

Discontinued gaging stations

Station name	Station number	Drainage area (sq mi)	Period of record
Upper Iowa River near Decorah, Iowa.	05388000	568	1913-14; 1919-27; 1933-51.
Yellow River at Ion, Iowa.	05389000	221	1934-51.
Turkey River at Elkader, Iowa.	05412000	891	1932-42.
Maquoketa River near Delhi, Iowa.	05417500	347	1933-40.
Maquoketa River above North Fork Maquoketa River near Maquoketa, Iowa.	05418000	938	1913-14.
Wapsipinicon River at Stone City, Iowa.	05421500	1,324	1903-14.
West Branch (West Fork) Iowa River near Klemme, Iowa.	05448500	112	1948-58.
Iowa River near Iowa Falls, Iowa.	05450000	665	1911-14.
Upper Pine Lake at Eldora, Iowa.	05450500	14.9	1936-70.
Lower Pine Lake at Eldora, Iowa.	05451000	15.9	1936-70.
Iowa River near Belle Plaine, Iowa.	05452500	2,455	1939-59.
Cedar River at Mitchell, Iowa.	05457500	826	1933-42.
Shell Rock River at Marble Rock (Greene), Iowa.	05460500	1,318	1933-53.
Shell Rock River at Greene, Iowa.	05461000	1,357	1933-42.
Shell Rock River near Clarksville, Iowa.	05461500	1,626	1915-27; 1932-34.
Skunk River at Coppock, Iowa.	05473000	2,916	1913-44.
East Fork Des Moines River near Hardy, Iowa.	05478500	1,268	1940-54.
Des Moines River near Fort Dodge, Iowa.	05479500	3,753	1911-13.
Des Moines River at Des Moines, Iowa.	05482000	6,245	1905-06; 1915-61.
Raccoon River at Des Moines, Iowa.	05485000	3,590	1902-03.
White Breast Creek near Knoxville, Iowa.	05488000	380	1945-62.
Fox River at Cantril, Iowa.	05494500	161	1940-51.
Dry Creek at Hawarden, Iowa.	06484000	48.4	1948-69.
Perry Creek at 38th Street, Sioux City, Iowa.	06600000	65.1	1945-69.
West Fork ditch at Holly Springs, Iowa.	06602000	399	1939-69.
Little Sioux River at Spencer, Iowa.	06605100	990	1936-42.
Little Sioux River near Kennebec, Iowa.	06606700	2,738	1939-69.
Maple River at Turin, Iowa.	06607300	725	1939-41.
Little Sioux River near Blencoe (Turin), Iowa.	06607510	4,470	1939-42.
Steer Creek near Magnolia, Iowa.	06609200	9.26	1963-69.
Thompson Creek near Woodbine, Iowa.	06609590	6.97	1963-69.
Waubonsie Creek near Bartlett, Iowa.	06806000	30.4	1946-69.
West Nishnabotna River at (near) White Cloud, Iowa.	06807500	967	1918-24.
Mule Creek near Malvern, Iowa.	06808000	10.6	1954-69.
Tarkio River (East Tarkio Creek) at Blanchard, Iowa.	06812000	200	1934-40.
West Nodaway River at Villisca, Iowa.	06816500	342	1918-25.
Honey Creek near Russell, Iowa.	06903500	13.2	1952-62.
Chariton River near Centerville, Iowa.	06904000	708	1938-59.

PART 2. WATER QUALITY RECORDS

05387500 UPPER IOWA RIVER AT DECORAH, IOWA

LOCATION.--Lat 43°18'19", long 91°47'48", in NE1/4 SW1/4 sec.16, T.98 N., R.8 W., Winneshiek County, at gaging station on right bank 1,200 ft upstream from bridge on U.S. Highway 52, 1,500 ft downstream from Dry Run cutoff, and 3.0 miles upstream from Trout Run.
DRAINAGE AREA.--511 sq mi.
PERIOD OF RECORD.--Water temperatures: October 1962 to September 1964, October 1965 to current year. Sediment records: October 1962 to December 1967.
EXTREMES.--Current year: Water temperatures: Maximum, 27.0°C June 28, 29, Aug. 21, 22; freezing point on many days during winter months.

Period of record: Water temperatures: Maximum, 32.0°C Aug. 23, 1968; freezing point on many days during winter months each year.
REMARKS.--Flow affected by ice Dec. 12, 13, Dec. 21 to Mar. 11, Mar. 15, 16. Temperature recorder installed on Apr. 12, 1967.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	15.5	12.0	6.5	6.5	5.0	4.0	0.5	0.5	0	0	0	0
2	15.0	12.0	6.5	6.0	4.5	3.5	0.5	0.5	0	0	0	0
3	13.0	10.0	6.0	6.0	4.5	4.0	0.5	0.5	0	0	0	0
4	13.0	9.0	7.0	6.0	4.0	3.5	0.5	0.5	0	0	0	0
5	16.0	11.0	6.5	5.5	3.0	0.5	1.0	0.5	0	0	0	0
6	15.5	15.0	6.5	5.5	0.5	0.5	1.0	1.0	0	0	0	0
7	15.5	15.0	6.5	5.5	0.5	0.5	1.0	1.0	0	0	0.5	0
8	15.0	14.5	6.5	6.0	1.0	0.5	1.0	1.0	0	0	0.5	0
9	15.0	10.0	8.0	6.5	1.0	0.5	1.0	0.5	0	0	0.5	0
10	10.0	9.0	8.0	7.0	0.5	0.5	0.5	0.5	0	0	1.0	0
11	9.0	9.0	7.0	7.0	0.5	0.5	0.5	0.5	0	0	1.5	0.5
12	10.0	9.0	7.0	6.5	1.0	0.5	1.0	0.5	0	0	2.0	1.0
13	10.5	9.0	6.5	5.0	1.0	0.5	1.0	0.5	0	0	4.5	2.0
14	10.0	8.0	5.0	3.5	0.5	0.5	0.5	0.5	0	0	4.0	1.0
15	9.0	6.5	3.5	3.5	0.5	0.5	1.0	0.5	0	0	1.0	0.5
16	9.0	6.5	---	---	0.5	0.5	1.0	0.5	0	0	1.0	0
17	9.5	6.5	4.5	3.5	0.5	0.5	1.0	0.5	0	0	1.5	0
18	10.0	8.0	5.0	4.5	1.0	0.5	1.0	0.5	0	0	1.5	0
19	10.0	8.0	5.0	4.0	0.5	0.5	1.0	0.5	0	0	1.5	0
20	10.0	9.0	4.0	4.0	1.0	0.5	0.5	0.5	0	0	2.0	0.5
21	11.0	9.5	4.0	3.5	1.0	1.0	0.5	0	0	0	3.0	1.5
22	10.5	10.0	4.0	0.5	1.0	1.0	0.5	0	0	0	3.0	1.0
23	11.0	10.5	0.5	0.5	1.0	0.5	0.5	0	0	0	2.0	0.5
24	11.5	11.0	0.5	0.5	1.0	0.5	0.5	0	0	0	3.0	0.5
25	12.0	11.0	0.5	0.5	1.0	0.5	0.5	0	0	0	3.0	1.0
26	11.5	11.5	0.5	0.5	0.5	0.5	0.5	0	0	0	3.0	1.5
27	11.5	10.0	1.0	0.5	0.5	0.5	0.5	0	0	0	5.0	3.0
28	10.0	9.5	2.0	1.0	1.0	0.5	0.5	0	0	0	4.0	3.0
29	9.5	8.5	3.5	2.0	1.0	1.0	0.5	0	---	---	3.5	2.0
30	8.5	8.0	4.0	3.5	1.0	1.0	0.5	0	---	---	4.0	1.5
31	8.0	6.5	---	---	1.0	0.5	0	0	---	---	3.5	1.5
MONTH	16.0	6.5	8.0	0.5	5.0	0.5	1.0	0	0	0	5.0	0

05387500 UPPER IOWA RIVER AT DECORAH, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.0	1.0	9.5	6.0	16.0	14.0	23.5	19.5	22.0	17.0	21.5	19.0
2	1.0	0.5	10.5	7.0	15.5	13.5	25.0	19.0	23.5	19.0	25.5	19.5
3	3.0	1.0	12.0	7.0	19.0	14.0	24.0	20.5	23.0	17.0	21.5	21.0
4	5.0	2.0	11.0	9.0	22.0	16.5	23.0	20.0	21.0	17.0	24.5	21.5
5	5.5	3.0	13.0	9.5	24.0	19.0	20.0	18.5	21.0	16.5	24.0	20.0
6	6.0	3.5	14.5	10.5	22.0	19.5	22.0	17.0	21.5	17.0	25.0	20.0
7	7.0	4.0	14.5	11.0	20.5	16.5	22.0	19.5	23.0	17.0	25.5	18.5
8	8.5	5.5	15.5	11.0	18.0	14.5	22.0	20.0	23.0	19.0	24.5	20.0
9	9.0	6.5	16.0	11.0	19.0	15.5	21.5	18.0	25.5	19.5	23.0	20.0
10	9.0	6.0	16.0	12.0	19.0	16.0	20.0	18.0	25.0	21.5	23.5	18.0
11	9.5	7.0	15.5	12.0	21.0	17.0	21.5	16.5	24.5	19.0	23.5	17.0
12	9.5	7.0	13.5	9.5	24.0	18.5	20.5	18.5	24.5	19.0	23.0	17.0
13	9.0	6.0	15.5	10.0	23.5	19.0	23.0	18.0	26.5	19.5	23.5	18.0
14	9.0	6.0	16.5	11.5	23.5	19.5	24.5	18.5	25.0	21.5	21.0	16.5
15	10.0	6.5	17.0	14.0	23.5	20.0	24.0	19.5	23.5	19.0	19.5	14.5
16	11.5	9.0	18.5	13.5	24.5	19.5	25.5	19.0	24.5	18.5	16.0	12.0
17	13.5	10.0	16.5	14.5	25.0	20.5	26.0	20.0	25.0	18.5	17.0	11.0
18	12.0	10.0	15.5	14.0	25.5	20.5	24.5	20.5	25.0	19.0	14.5	13.0
19	12.0	9.5	14.0	11.0	25.0	21.0	24.0	18.5	24.5	21.0	13.5	11.5
20	13.5	10.5	13.5	9.5	23.5	19.5	23.5	19.0	26.5	20.0	15.0	10.0
21	13.0	9.0	15.0	11.0	23.5	19.0	25.5	19.0	27.0	21.5	16.0	11.5
22	11.0	7.0	14.0	11.5	23.5	20.0	23.5	21.0	27.0	21.0	15.5	13.0
23	11.0	8.5	11.5	10.5	24.5	19.0	24.5	20.0	25.5	20.5	16.0	12.0
24	11.0	8.5	11.5	11.0	23.5	19.5	25.5	19.5	23.0	19.0	16.5	11.0
25	11.5	8.5	11.0	9.0	22.0	18.0	23.0	19.5	22.0	17.0	14.0	12.0
26	12.0	9.0	10.0	8.0	21.0	19.0	21.0	17.0	20.0	16.5	13.5	12.0
27	11.0	8.0	13.0	8.5	25.0	20.0	19.0	16.0	20.5	14.0	18.0	13.5
28	8.0	5.5	15.0	10.0	27.0	22.0	20.5	15.5	22.0	15.0	20.5	16.5
29	8.0	5.0	16.5	12.0	27.0	23.5	19.5	15.5	23.5	16.0	18.5	15.5
30	7.0	6.0	18.0	13.5	25.0	22.0	19.0	15.0	22.0	17.0	20.5	15.0
31	---	---	16.5	15.0	---	---	21.0	14.5	21.0	19.0	---	---
MONTH	13.5	0.5	18.5	6.0	27.0	13.5	26.0	14.5	27.0	14.0	25.5	10.0
YEAR	27.0	0										

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT., 1970					
07...	1405	132	325	8.1	15.0
NOV.					
17...	0900	429	480	8.0	35.0
JAN., 1971					
07...	0920	150	--	--	.0
FEB.					
08...	1510	134	540	8.1	.0
APR.					
27...	0815	478	480	8.8	8.5
JUNE					
09...	0900	518	325	--	15.5
JULY					
19...	1745	170	410	8.1	24.0
AUG.					
30...	1520	96	--	--	21.5

05487500 UPPER IOWA RIVER AT DECORAH, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT.					
07...	1300	15.0	132	25	8.9
NOV.					
17...	0740	3.5	429	45	52
FEB.					
08...	1400	.0	134	34	12
APR.					
26...	1530	14.0	478	20	26
JUNE					
09...	0740	16.0	518	105	147
JULY					
19...	1640	24.0	170	46	21

05414700 MISSISSIPPI RIVER AT DUBUQUE, IOWA

LOCATION.--Lat 42°32'25", long 90°38'42", in NE1/4 NE1/4 sec.7, T.89 N., R.3 E., Dubuque County, at Lock and Dam No. 11 at outer streamward lock wall, 130 ft upstream from dam, and at mile 1,536.8.
DRAINAGE AREA.--81,600 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.
REMARKS.--Water discharge furnished by District Office, Corps of Engineers, Rock Island, Illinois. Station operated by EPA during period December 1957 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	ORGANIC NITROGEN (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)
OCT.											
09...	23000	--	--	--	30	--	.84	.02	.2	.16	.07
NOV.											
04...	--	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	142	--	--	--	--	--	--	--
13...	69000	7.2	2.4	--	25	.2	.89	.10	1.7	.09	.04
16...	--	--	--	142	--	--	--	--	--	--	--
30...	--	--	--	180	--	--	--	--	--	--	--
DEC.											
07...	--	--	--	148	--	--	--	--	--	--	--
16...	31000	6.7	2.7	--	50	.2	.23	.00	3.0	.22	.04
21...	--	--	--	142	--	--	--	--	--	--	--
JAN.											
11...	--	--	--	160	--	--	--	--	--	--	--
14...	24000	--	--	--	46	--	.00	.19	1.8	.17	.05
18...	--	--	--	158	--	--	--	--	--	--	--
25...	--	--	--	156	--	--	--	--	--	--	--
FEB.											
03...	--	--	--	164	--	--	--	--	--	--	--
16...	--	--	--	164	--	--	--	--	--	--	--
17...	23300	--	--	--	36	--	.30	.09	1.2	.08	.04
MAR.											
01...	--	--	--	152	--	--	--	--	--	--	--
09...	--	--	--	172	--	--	--	--	--	--	--
10...	34900	--	--	--	27	--	.44	.12	1.8	.16	.10
16...	--	--	--	148	--	--	--	--	--	--	--
22...	--	--	--	152	--	--	--	--	--	--	--
30...	--	--	--	144	--	--	--	--	--	--	--
APR.											
05...	--	--	--	130	--	--	--	--	--	--	--
07...	108000	--	--	--	24	--	.04	.15	2.3	.18	.04
13...	--	--	--	134	--	--	--	--	--	--	--
20...	--	--	--	130	--	--	--	--	--	--	--
26...	--	--	--	120	--	--	--	--	--	--	--
MAY											
03...	--	--	--	122	--	--	--	--	--	--	--
10...	--	--	--	118	--	--	--	--	--	--	--
12...	70000	--	--	--	27	--	1.1	.00	.2	.17	.07
24...	--	--	--	128	--	--	--	--	--	--	--
JUNE											
01...	--	--	--	116	--	--	--	--	--	--	--
07...	--	--	--	118	--	--	--	--	--	--	--
09...	69000	6.2	2.3	--	28	.3	.90	.00	.6	.19	.08
14...	--	--	--	--	--	--	--	--	--	--	--
JULY											
06...	--	--	--	160	--	--	--	--	--	--	--
12...	--	--	--	184	--	--	--	--	--	--	--
14...	53000	--	--	--	44	--	.71	.08	1.3	.09	.08
19...	--	--	--	190	--	--	--	--	--	--	--
AUG.											
05...	--	--	--	164	--	--	--	--	--	--	--
09...	--	--	--	162	--	--	--	--	--	--	--
11...	22000	--	--	--	42	--	.08	.08	.3	.12	.06
16...	--	--	--	160	--	--	--	--	--	--	--
23...	--	--	--	158	--	--	--	--	--	--	--
30...	--	--	--	156	--	--	--	--	--	--	--
SEPT.											
07...	--	--	--	161	--	--	--	--	--	--	--
08...	26000	--	--	141	32	--	.16	.05	.1	.12	.03
13...	--	--	--	162	--	--	--	--	--	--	--
20...	--	--	--	168	--	--	--	--	--	--	--
27...	--	--	--	160	--	--	--	--	--	--	--

05414700 MISSISSIPPI RIVER AT DUBUQUE, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	HARD-NESS (CA,MG) (MG/L)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	COLI-FORM (COL-ONIES PER 100 ML)
OCT.										
09...	--	360	8.5	15.5	32	15	8.8	93	1.5	190
NOV.										
04...	152	--	8.4	10.0	--	--	13.5	82	--	5100
09...	124	--	8.2	8.0	--	--	13.3	87	--	3500
13...	--	320	--	9.0	75	35	--	--	5.3	--
16...	148	--	8.1	5.0	--	--	14.3	110	--	400
30...	190	--	8.2	2.0	--	--	15.7	118	--	1300
DEC.										
07...	202	--	8.2	2.0	--	--	16.7	125	--	660
16...	--	400	--	1.5	26	8.0	--	--	--	--
21...	190	--	8.2	--	--	--	16.0	113	--	570
JAN.										
11...	208	--	8.0	.0	--	--	12.7	89	--	2100
14...	--	421	--	.0	30	1.0	--	--	--	--
18...	198	--	7.9	.0	--	--	9.4	66	--	--
25...	180	--	7.8	.5	--	--	9.3	65	--	530
FEB.										
03...	190	--	7.6	1.0	--	--	10.0	71	--	700
16...	184	--	7.7	1.0	--	--	10.1	72	--	1300
17...	--	420	--	.0	--	1.0	--	--	2.8	--
MAR.										
01...	188	--	7.8	1.0	--	--	8.6	64	--	2200
09...	194	--	7.8	1.0	--	--	10.9	81	--	--
10...	--	390	--	1.0	20	9.0	--	--	4.5	2000
16...	160	--	7.8	1.0	--	--	11.5	85	--	3000
22...	162	--	7.9	1.0	--	--	12.1	90	--	1500
30...	152	--	8.1	3.5	--	--	13.0	103	--	1600
APR.										
05...	146	--	8.1	4.0	--	--	14.8	119	--	1800
07...	--	340	--	7.0	15	20	--	--	5.6	--
13...	144	--	8.1	9.0	--	--	11.8	101	--	1700
20...	122	--	8.3	14.0	--	--	12.9	118	--	1700
26...	128	--	8.5	14.0	--	--	14.5	131	--	2000
MAY										
03...	154	--	8.4	12.0	--	--	15.6	135	--	2100
10...	134	--	8.9	16.5	--	--	17.4	166	--	2400
12...	--	280	--	14.0	20	20	--	--	4.4	--
24...	134	--	8.5	17.0	--	--	8.7	90	--	2800
JUNE										
01...	130	--	8.7	17.0	--	--	10.0	109	--	4100
07...	120	--	8.4	23.0	--	--	8.3	100	--	2100
09...	--	304	--	20.0	20	30	--	--	3.9	--
14...	118	--	8.5	25.0	--	--	7.6	95	--	5300
JULY										
06...	164	--	8.0	26.0	--	--	5.7	73	--	2100
12...	162	--	8.1	24.0	--	--	6.6	81	--	4500
14...	--	380	--	23.0	25	100	--	--	3.3	--
19...	194	--	8.2	25.0	--	--	6.9	86	--	3500
AUG.										
05...	160	--	8.5	22.0	--	--	9.3	104	--	2300
09...	160	--	8.6	25.0	--	--	--	--	--	3800
11...	--	380	--	23.0	15	2.0	--	--	3.0	--
16...	150	--	8.5	24.0	--	--	6.4	79	--	2500
23...	156	--	8.4	25.0	--	--	5.5	69	--	3600
30...	164	--	8.3	24.0	--	--	6.1	75	--	4900
SEPT.										
07...	146	--	8.2	25.0	--	--	5.6	70	--	3800
08...	160	320	7.4	26.0	20	9.0	--	--	--	--
13...	182	--	8.2	--	--	--	4.7	--	--	3600
20...	148	--	8.4	18.0	--	--	5.8	64	--	5600
27	158	--	8.5	18.0	--	--	4.2	46	--	2200

05414700 MISSISSIPPI RIVER AT DUBUQUE, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	SAMPLE SIZE (GALS)	TOTAL CARBON EX-TRACTABLES (UG/L)	CARBON CHLORO-FORM EX-TRACTABLES (UG/L)	CARBON ALCOHOL EX-TRACTABLES (UG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT.					
09...	--	--	--	--	.00
NOV.					
04-05	758	623	76	547	--
13...	--	--	--	--	.05
DEC.					
01-03	832	568	102	466	--
16...	--	--	--	--	.04
JAN.					
12-14	1223	599	114	485	--
14...	--	--	--	--	.07
FEB.					
03-05	547	1051	194	857	--
17...	--	--	--	--	.09
MAR.					
01-02	810	535	109	426	--
10...	--	--	--	--	.15
APR.					
07...	--	--	--	--	.10
MAY					
12...	--	--	--	--	.11
JUNE					
09...	--	--	--	--	.11
JULY					
14...	--	--	--	--	.13
AUG.					
11...	--	--	--	--	.07
SEPT.					
08...	--	--	--	--	.04

DATE	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL FILT-RABLE RESIDUE (MG/L)	TOTAL RESI-DUE (MG/L)	SUS-PENDED ALPHA (PC/L)	SUS-PENDED ALPHA (COUNT-ING ERROR)	DIS-SOLVED ALPHA (PC/L)	DIS-SOLVED ALPHA (COUNT-ING ERROR)	TOTAL ALPHA (PC/L)
NOV.								
13...	82	223	305	2.0	1.0	1.0	1.0	3.0

DATE	TOTAL ALPHA (COUNT-ING ERROR)	SUS-PENDED BETA (PC/L)	SUS-PENDED BETA (COUNT-ING ERROR)	DIS-SOLVED BETA (PC/L)	DIS-SOLVED BETA (COUNT-ING ERROR)	TOTAL BETA (PC/L)	TOTAL BETA (COUNT-ING ERROR)
NOV.							
13...	2.0	5.0	1.0	6.0	1.0	11	1.0

05454500 IOWA RIVER AT IOWA CITY, IOWA

LOCATION.--Lat 41°39'24", long 91°32'27", in SE1/4 SE1/4 sec.9, T.79 N., R.6 W., Johnson County, at Benton Street bridge at Iowa City, 0.5 mile downstream from gaging station, 0.3 mile upstream from Ralston Creek, 4.1 miles downstream from Clear Creek and at mile 73.7.
DRAINAGE AREA.--3,271 sq mi.
PERIOD OF RECORD.--Chemical analysis: September 1906 to September 1907, January 1944 to September 1954.
Specific conductance: October 1968 to current year.
Water temperatures: January 1944 to current year.
Sediment records: October 1943 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 700 micromhos Dec. 22; minimum daily, 150 micromhos Feb. 23, 24.
Water temperatures: Maximum, 32.0°C June 27; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 741 mg/l Feb. 19; minimum daily, 16 mg/l Jan. 9.
Sediment loads: Maximum daily, 17,200 tons Mar. 8; minimum daily, 13 tons Sept. 28, 29.

Period of record: Specific conductance: Maximum daily, 700 micromhos Dec. 22, 1970; minimum daily, 150 micromhos Feb. 23, 24, 1971.
Water temperatures: Maximum, 32.0°C July 19, 1957, Aug. 24, 25, 1959, June 27, 1971; freezing point on many days during winter months each year.
Sediment concentrations: Maximum daily, 7,800 mg/l June 13, 1953; minimum daily, 2 mg/l Dec. 16, 18, 20, 21, 27, 1963.
Sediment loads: Maximum daily, 177,000 tons May 23,1944; minimum daily, 0.9 ton Dec. 16, 1963.
REMARKS.--Diurnal fluctuation at low stages caused by power plant upstream. Flow regulated by Coralville Reservoir (Sta. 05453510) 9.6 miles upstream from Iowa City since Sept. 17, 1958. Flow affected by ice Jan.27.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	580	570	420	500	190	460	480	430	480	460	450
2	450	---	570	440	510	180	460	480	470	480	460	440
3	450	580	570	470	510	180	---	440	480	---	460	440
4	450	580	570	470	510	180	450	---	480	500	460	440
5	450	---	570	480	510	200	450	480	---	---	450	---
6	450	580	570	480	510	200	460	470	---	500	450	460
7	450	610	570	510	510	220	460	430	---	490	---	450
8	450	610	570	510	510	220	440	430	480	460	460	450
9	450	610	570	500	520	270	440	380	480	460	460	450
10	450	610	570	500	520	270	440	450	480	---	480	450
11	460	500	430	500	520	320	---	---	480	510	480	450
12	460	500	430	500	430	360	490	460	---	520	480	450
13	---	520	440	480	430	---	490	470	---	520	480	450
14	460	520	420	480	220	410	510	---	460	520	460	450
15	---	510	420	480	---	390	440	---	460	520	460	450
16	400	510	420	480	210	310	500	---	470	430	460	450
17	390	510	420	480	---	270	520	---	470	---	450	---
18	390	510	420	480	220	260	480	---	470	---	450	---
19	---	510	420	500	---	260	500	---	---	430	450	450
20	460	510	420	500	220	260	490	---	---	390	450	450
21	460	540	420	480	320	280	470	---	470	390	450	450
22	500	540	700	480	160	310	470	---	460	---	450	450
23	---	540	420	520	150	320	470	---	430	420	450	450
24	---	540	420	520	150	350	430	---	440	420	450	---
25	---	540	---	480	210	385	390	---	440	---	450	430
26	---	530	420	480	170	390	450	390	460	460	450	450
27	500	530	420	470	190	420	440	---	460	460	430	435
28	---	530	420	470	170	430	460	430	460	480	430	450
29	---	530	420	470	---	440	490	430	---	480	430	450
30	---	530	420	470	---	---	---	---	460	480	430	460
31	580	---	420	500	---	460	---	480	---	480	440	---
MONTH	---	543	481	484	355	301	465	---	---	---	454	448
YEAR	447											

05454500 IOWA RIVER AT IOWA CITY, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	11.0	5.0	2.0	1.0	---	5.0	13.0	21.0	28.0	28.0	29.0
2	19.5	---	5.0	1.5	1.0	---	5.0	12.0	20.0	28.0	26.0	29.0
3	19.0	12.0	4.5	1.5	0	---	---	15.0	22.0	---	25.0	30.0
4	19.0	11.0	3.5	1.0	0	---	7.0	---	22.0	25.0	24.0	29.0
5	19.0	6.0	3.5	0.5	0	---	8.0	15.0	---	---	23.0	---
6	18.5	11.0	2.0	0	0	---	9.0	16.0	---	28.0	25.0	28.0
7	18.5	12.0	1.5	0	0	---	10.0	13.0	---	26.0	---	26.0
8	18.5	12.0	1.5	0	0	---	12.0	16.0	23.0	27.0	24.0	27.0
9	18.0	12.0	1.5	0	0	---	11.0	18.0	23.0	25.0	28.0	28.0
10	17.0	11.0	1.5	0	0	---	13.0	18.0	22.0	---	28.0	27.0
11	17.0	11.0	2.0	0.5	1.0	2.0	---	---	22.0	25.0	25.0	27.0
12	16.5	10.0	1.5	0.5	0.5	2.0	13.0	16.0	---	26.0	24.0	28.0
13	---	4.0	1.0	0	0.5	---	13.0	20.0	---	26.0	28.0	24.0
14	15.5	10.0	0.5	0	0.5	5.0	15.0	---	23.0	27.0	24.0	23.0
15	---	8.5	0.5	0	---	5.0	16.0	---	28.0	27.0	26.0	22.0
16	14.5	8.0	0.5	0	1.0	2.0	17.0	---	28.0	26.0	25.0	22.0
17	14.5	9.0	0.5	0	---	3.0	17.0	---	28.0	---	26.0	---
18	14.0	8.0	0.5	0	1.0	4.0	19.0	---	28.0	---	26.0	---
19	---	9.0	0.5	0	3.0	2.0	18.0	---	---	25.0	25.0	19.0
20	15.0	8.0	0.5	0	1.0	2.0	20.0	---	---	27.0	26.0	20.0
21	15.5	5.5	1.0	0	1.0	4.0	16.0	---	28.0	25.5	27.0	20.0
22	15.0	4.5	0	0	1.0	3.0	19.0	---	29.0	---	29.0	20.0
23	---	3.5	0	0	1.0	3.0	17.0	---	28.0	23.0	27.0	18.0
24	---	3.5	0	0.5	1.0	4.0	17.0	---	28.0	27.0	27.0	---
25	---	3.5	---	0.5	2.0	3.0	17.0	---	27.0	---	27.0	20.0
26	---	3.5	1.0	0.5	1.0	4.0	18.0	15.0	28.0	25.0	22.0	19.0
27	12.0	3.5	0.5	1.0	1.0	4.5	14.0	---	32.0	25.0	26.0	22.0
28	---	3.5	0.5	1.0	1.0	6.0	12.0	18.0	31.0	23.0	27.0	21.0
29	13.5	3.5	0.5	2.0	---	8.0	15.0	18.0	30.0	23.0	26.0	22.0
30	---	4.5	0.5	2.0	---	---	---	---	30.0	23.0	29.0	23.0
31	17.0	---	1.0	1.0	---	11.0	---	18.0	---	27.0	28.0	---
MONTH	---	7.5	1.5	0.5	1.0	---	14.0	---	---	---	26.0	24.0

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC., 1970					
22...	1050	1410	700	--	.0
JAN., 1971					
25...	1100	669	--	--	.0
FEB.					
25...	1505	8960	--	--	2.0
MAR.					
25...	1055	7880	400	7.8	2.0
APR.					
20...	1200	2270	550	8.3	--
JUNE					
29...	1205	812	--	--	30.0
JULY					
21...	1000	1160	--	--	24.0
SEP.					
27...	0925	162	420	--	--
29...	1305	161	--	--	22.5

05454500 IOWA RIVER AT IOWA CITY, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4310	158	1840	1820	66	324	1490	569	2510
2	4280	181	2090	1790	62	300	1450	485	1900
3	4240	155	1770	1500	69	279	1420	210	805
4	4220	115	1310	1240	64	214	1410	150	571
5	4200	125	1420	1250	54	182	1410	140	533
6	4190	131	1480	1250	31	105	1400	130	491
7	4190	129	1460	1280	63	218	1270	120	411
8	4190	149	1690	1270	71	243	1140	110	339
9	4160	162	1820	1260	73	248	1130	108	330
10	3570	158	1520	1250	60	203	1130	128	391
11	3010	152	1240	1250	54	182	1180	129	411
12	3010	145	1180	1240	58	194	1290	134	467
13	2730	118	870	1140	57	175	1480	150	599
14	2480	145	971	992	56	150	2330	209	1310
15	2470	175	1170	989	56	150	2800	185	1400
16	2350	146	926	983	56	149	2810	142	1080
17	2250	302	1830	897	56	136	2800	131	990
18	2240	333	2010	825	62	138	2170	107	627
19	2250	170	1030	1360	171	628	1590	78	335
20	2230	135	813	1690	197	899	162	87	381
21	2070	127	710	1540	192	798	1740	107	503
22	1550	123	515	1560	191	804	1580	96	410
23	1550	138	578	1580	190	811	1060	238	681
24	1550	100	419	1370	189	699	849	120	275
25	1540	85	353	1050	187	530	924	99	247
26	1540	87	362	1050	185	524	1040	95	267
27	1610	95	413	1060	155	444	1040	90	253
28	1670	109	491	1070	143	413	936	109	275
29	1860	91	457	1070	142	410	829	115	257
30	1840	79	392	1070	103	298	831	103	231
31	--	--	--	1100	78	232	--	--	--
TOTAL	83350	--	33130	38796	--	11080	44149	--	19280

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	801	94	203	592	71	113	172	49	23
2	774	80	167	564	71	108	172	49	23
3	774	75	157	541	93	136	172	49	23
4	811	73	160	516	93	130	200	47	25
5	1030	104	289	513	88	122	242	43	28
6	1390	120	450	511	80	110	188	37	19
7	1700	129	592	513	65	90	178	31	15
8	1950	150	790	521	52	73	178	34	16
9	2040	151	832	520	58	81	208	54	30
10	2170	186	1090	438	62	73	195	45	24
11	2060	296	1650	458	60	74	175	30	14
12	1990	273	1590	428	48	55	175	34	16
13	3780	297	3030	390	53	56	172	49	23
14	3860	200	2080	362	45	44	172	55	26
15	3730	160	1610	360	44	43	170	55	25
16	3080	97	807	357	45	43	172	53	25
17	2120	90	515	354	52	50	172	47	22
18	1570	120	509	328	65	58	175	39	18
19	1160	170	532	304	53	44	205	33	18
20	1140	96	295	302	49	40	180	31	15
21	1120	93	281	280	46	35	172	35	16
22	1010	97	265	237	48	31	172	51	24
23	959	85	220	234	48	30	170	53	24
24	951	90	231	234	50	32	170	48	22
25	956	88	227	227	53	32	180	41	20
26	961	82	213	202	51	28	175	38	18
27	866	71	166	192	47	24	173	33	15
28	787	62	132	175	45	21	172	29	13
29	781	64	135	175	43	20	158	30	13
30	707	63	120	175	47	22	155	37	15
31	616	77	128	172	46	21	--	--	--
TOTAL	47644	--	19466	11175	--	1839	5370	--	608

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 76 845
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 356713

05454500 IOWA RIVER AT IOWA CITY, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1570	71	301	2180	40	235	1860	72	362
2	1340	55	199	2180	35	206	1930	32	167
3	1320	44	157	2170	32	187	2010	23	125
4	1310	49	173	2160	29	169	2000	45	243
5	1180	60	191	2130	28	161	1990	40	215
6	1040	66	185	1960	27	143	1970	33	174
7	1040	58	163	1960	26	138	1800	80	389
8	1040	95	267	1950	26	137	1420	89	341
9	1630	158	695	1980	26	139	1410	45	171
10	2500	120	810	1980	24	128	1450	153	599
11	3040	126	1030	1960	25	132	1560	218	918
12	3430	118	1090	1960	34	180	1490	89	358
13	3760	104	1060	1950	71	374	1470	53	210
14	3760	96	975	1870	41	207	1810	93	525
15	3750	94	952	1870	55	278	2700	96	700
16	3740	89	899	1870	80	404	2930	71	562
17	3720	66	663	1870	39	197	2910	82	644
18	3700	72	719	1870	61	308	2340	83	524
19	3680	72	715	1820	149	732	1500	88	356
20	3510	78	739	1700	142	652	1470	65	258
21	2480	70	469	1690	36	164	1470	120	476
22	1920	58	301	1670	43	194	1460	47	185
23	1940	57	299	1630	36	158	1340	54	195
24	1930	57	297	1660	27	121	1180	60	191
25	1920	58	301	1620	69	302	1150	45	140
26	2170	62	363	1450	92	360	1140	47	145
27	2640	44	314	1450	29	114	1120	66	200
28	2860	47	363	1450	130	509	966	52	136
29	2670	58	418	1450	154	603	804	51	111
30	2200	54	321	1590	108	464	801	72	156
31	2190	68	402	--	--	--	804	66	143
TOTAL	74980	--	15831	55050	--	8096	50255	--	9921

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	810	38	83	569	24	37	8950	235	5680
2	809	47	103	562	21	32	9350	147	3710
3	817	52	115	561	38	58	10100	220	6000
4	819	23	51	568	26	40	10100	212	5780
5	868	17	40	569	21	32	9960	227	6100
6	897	42	102	565	21	32	9820	294	7800
7	879	40	95	566	30	46	9680	650	17000
8	774	18	38	1410	58	283	9590	665	17200
9	697	16	30	2420	62	405	9370	198	5010
10	688	23	43	2290	41	254	9230	135	3360
11	679	61	112	2140	41	237	8750	130	3070
12	675	23	42	1910	120	619	8620	175	4070
13	676	20	37	1860	202	1010	8120	142	3110
14	675	25	46	1760	475	2260	7270	68	1330
15	679	28	51	1670	542	2440	6730	171	3110
16	674	17	31	1100	541	1610	6940	261	4890
17	674	30	55	617	440	733	6710	348	6300
18	671	34	62	2270	558	3420	6870	345	6400
19	691	35	65	5350	741	10700	7420	333	6670
20	680	34	62	4660	737	9270	8080	314	6850
21	673	44	80	1780	328	1730	8690	224	5260
22	671	84	152	1450	313	1230	8750	202	4770
23	669	37	67	2250	375	2280	8460	201	4590
24	668	20	36	5160	460	6410	8070	158	3440
25	649	22	39	8540	380	8760	7700	121	2520
26	653	56	99	10200	343	9450	7430	121	2430
27	650	55	97	9360	382	9650	6670	145	2610
28	646	20	35	8420	309	7020	5990	110	1780
29	605	21	34	--	--	--	5510	111	1650
30	572	33	51	--	--	--	4360	121	1420
31	581	26	41	--	--	--	4340	129	1510
TOTAL	21869	--	1994	80577	--	80048	247630	--	155420

05454500 IOWA RIVER AT IOWA CITY, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM
FEB.											
19...	1420	3.0	--	5530	677	10100	31	38	39	58	83
25...	1600	1.0	4	8580	--	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	METHOD OF ANALYSIS
FEB.											
19...	99	99	100	--	--	--	--	--	--	--	VPWC
25...	--	--	--	1	9	68	96	99	99	100	S

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

05455000 RALSTON CREEK AT IOWA CITY, IOWA

LOCATION.--Lat 41°39'50", long 91°30'48", in SE1/4 NW1/4 sec.11, T.79 N., R.6 W., Johnson County, at gaging station at bridge on Rochester Avenue, Iowa City, and 2.2 miles upstream from mouth.
DRAINAGE AREA.--3.01 sq mi.
PERIOD OF RECORD.--Specific conductance: April 1968 to current year.
Water temperatures: October 1960 to current year.
Sediment records: April 1952 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 860 micromhos Feb. 6; minimum daily, 180 micromhos Feb. 18.
Water temperatures: Maximum, 30.0°C June 30, July 1, 4, 6, 8, 9, 12; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 1,900 mg/l July 7; minimum daily, no flow on several days during August and September.
Sediment load: Maximum daily, 212 tons July 10; minimum daily, 0 ton on many days during July, August, and September.

Period of record: Specific conductance: Maximum daily, 1,200 micromhos Dec. 1, 1968; minimum daily, 180 micromhos Feb. 18, 1971.
Water temperatures: Maximum, 31.0°C July 21, 1968; freezing point on many days during winter months each year.
Sediment concentration: Maximum daily, 8,700 mg/l May 23, 1966; no flow on many days in 1953-59, 1963-68, 1971.
Sediment loads: Maximum daily, 4,300 tons May 23, 1966; 0 ton on many days in 1953-59, 1963-68, 1971.
REMARKS.--Flow affected by ice Nov. 22-24, Dec. 4-7, 13-16, Dec. 19 to Mar. 12.
REVISIONS (WATER YEARS).--WRD Iowa 1967: 1965-66.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	480	400	420	380	450	410	410	420	420	420	410	---
2	480	400	410	380	450	480	400	440	420	420	350	---
3	470	---	410	380	450	480	400	440	420	420	350	---
4	450	400	400	380	430	450	400	440	400	460	350	480
5	450	390	410	380	850	450	400	340	400	460	350	---
6	430	390	400	400	860	480	400	420	400	460	350	500
7	420	430	390	420	820	480	400	440	400	460	350	500
8	370	185	390	400	820	440	400	420	400	470	350	500
9	460	220	370	420	820	440	400	420	400	450	350	510
10	390	400	260	420	410	710	400	420	400	280	350	520
11	400	390	410	420	390	630	410	420	400	460	380	460
12	420	215	380	420	390	500	410	420	400	440	380	420
13	400	430	410	450	390	680	410	---	420	380	380	420
14	390	420	420	450	390	750	410	400	420	380	380	400
15	390	380	410	450	610	520	420	400	450	380	380	400
16	390	380	500	450	610	400	460	400	350	400	380	400
17	430	630	310	450	315	420	460	400	440	400	380	360
18	430	320	420	460	180	430	430	400	410	320	380	500
19	410	420	420	460	450	400	430	400	350	420	380	460
20	410	430	420	460	220	400	420	400	340	420	380	540
21	410	350	415	450	560	410	515	400	410	400	380	540
22	530	420	420	450	310	410	410	400	400	400	390	520
23	320	420	420	450	730	560	410	420	440	370	360	520
24	420	400	420	420	410	420	410	380	440	500	380	510
25	420	400	420	420	360	420	410	470	430	360	420	510
26	420	400	430	440	320	410	410	420	430	310	400	520
27	410	420	410	615	430	410	530	420	440	420	---	570
28	400	460	410	440	450	430	580	420	430	420	---	560
29	400	430	390	440	---	410	420	420	430	410	---	560
30	400	260	390	450	---	410	420	420	420	410	---	560
31	400	---	380	450	---	410	---	420	---	410	---	---
MONTH	419	386	402	434	496	473	426	414	410	410	373	490
YEAR	427											

05455000 RALSTON CREEK AT IOWA CITY, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	13.5	2.0	0	0	2.0	6.0	10.0	23.5	30.0	25.5	---
2	15.0	13.0	1.0	0	0	1.5	7.0	13.0	23.5	29.5	25.5	---
3	15.0	---	0.5	0	0	2.0	8.0	16.0	23.5	29.5	26.0	---
4	14.5	10.5	0	0	0	3.0	8.5	16.5	23.5	30.0	25.0	25.5
5	15.0	10.0	0	0	0	3.0	8.0	15.5	24.0	29.5	26.0	26.0
6	15.5	10.0	0	0	0	2.0	8.5	18.5	25.0	30.0	26.5	26.5
7	16.0	10.5	0	0	0	0.5	9.0	13.5	25.5	29.5	26.5	27.0
8	16.5	10.5	0	0	0	0	8.5	14.5	25.5	30.0	26.5	28.0
9	15.5	10.0	0	0	0	0	8.5	15.0	26.0	30.0	26.5	27.0
10	16.0	9.0	0.5	0	0	4.0	9.0	15.5	26.5	24.0	27.0	26.5
11	15.5	8.5	0	0	0	3.5	8.0	16.0	26.5	29.5	27.0	27.0
12	14.5	8.0	0.5	0	0	3.0	8.5	18.5	26.5	30.0	26.0	27.0
13	14.5	8.0	0.5	0	0	4.0	9.0	---	27.0	29.0	26.5	26.5
14	14.5	8.0	0	0	0	4.5	9.5	19.5	28.0	29.0	26.5	26.5
15	14.5	7.0	0	0	1.0	3.5	14.0	19.5	28.0	28.0	26.0	21.0
16	14.5	6.5	1.0	0	1.0	3.5	15.0	20.0	28.0	28.0	26.5	25.5
17	13.5	9.0	0.5	0	2.0	4.0	15.5	20.5	28.5	27.0	26.5	25.0
18	15.0	8.5	0	0	3.0	4.0	16.0	21.0	28.5	25.5	26.0	25.5
19	15.0	8.0	0	0	3.5	4.0	20.0	20.5	28.5	26.5	26.5	20.5
20	14.5	7.0	0	0	3.0	3.5	20.5	20.5	28.5	26.5	26.5	20.0
21	14.5	5.5	0.5	0	1.0	4.0	17.0	21.0	28.5	26.0	26.5	20.0
22	14.5	0	1.0	0	0	4.5	21.0	20.5	28.5	26.0	27.0	19.5
23	15.5	0	0.5	0	0	3.0	20.5	20.0	28.0	26.5	26.0	19.5
24	15.5	0	0.5	0	3.0	4.5	21.0	15.5	29.0	26.5	26.0	20.0
25	15.0	0	0	0	4.0	4.5	21.0	18.0	28.5	26.0	26.0	20.5
26	14.5	0.5	0	0	2.0	4.0	12.0	19.5	29.0	25.5	26.5	21.0
27	14.5	0.5	0	0	3.5	4.5	11.5	20.0	29.0	26.5	---	21.0
28	14.0	1.0	0	0	3.0	4.5	9.5	20.5	29.5	25.5	---	20.0
29	14.5	1.5	0	0	---	5.0	10.0	21.0	29.5	26.0	---	19.5
30	13.5	1.5	0	0	---	5.5	11.0	21.5	30.0	25.5	---	19.5
31	14.0	---	0	0	---	6.5	---	23.5	---	26.0	---	---
MONTH	15.0	6.5	0.5	0	1.0	3.5	12.5	18.0	27.0	27.5	26.5	23.5
YEAR	13.0											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC., 1970					
21...	1610	1.3	650	--	--
JAN., 1971					
27...	1140	.37	790	7.7	--
FEB.					
26...	1235	4.4	560	7.8	--
MAR.					
23...	1205	1.3	700	--	2.0
APR.					
21...	1050	.98	620	8.3	14.5
JULY					
20...	0940	.23	--	--	17.0
SEP.					
27...	1125	.10	630	--	--

05455000 RALSTON CREEK AT IOWA CITY, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1.9	23	.12	1.1	31	.09	1.2	23	.07
2	1.5	59	.24	1.3	52	.18	.98	26	.07
3	1.3	65	.23	1.2	69	.22	.88	28	.07
4	1.3	46	.16	1.2	68	.22	.79	32	.07
5	1.3	42	.15	1.1	67	.20	.75	45	.09
6	1.3	34	.12	1.1	50	.15	.62	52	.09
7	1.3	65	.23	.99	48	.13	.68	38	.07
8	8.3	398	21	.92	66	.16	.82	33	.07
9	5.6	630	9.5	2.8	151	1.1	.80	29	.06
10	2.7	250	1.8	2.1	107	.71	1.4	200	.76
11	2.1	66	.37	1.5	48	.19	1.3	125	.44
12	1.3	70	.25	1.6	17	.07	1.0	35	.09
13	1.5	98	.40	1.5	24	.10	.95	35	.09
14	1.3	67	.24	1.4	29	.11	.90	57	.14
15	1.2	74	.24	1.6	36	.16	.80	41	.09
16	1.1	86	.26	2.1	60	.34	1.2	66	.21
17	1.1	70	.21	2.1	41	.23	1.5	33	.13
18	1.1	66	.20	2.1	50	.28	1.7	23	.11
19	1.0	45	.12	2.2	34	.20	1.6	85	.37
20	1.0	54	.15	2.9	32	.25	1.4	56	.21
21	.99	40	.11	2.3	9	.06	1.2	50	.16
22	2.9	100	.94	1.8	15	.07	1.1	57	.17
23	1.8	155	.75	1.4	39	.15	.90	79	.19
24	1.4	118	.45	.64	30	.05	.82	111	.25
25	1.1	54	.16	1.4	19	.07	.76	47	.10
26	1.1	41	.12	2.2	20	.12	.70	23	.04
27	1.3	82	.29	2.3	40	.25	.64	52	.09
28	2.2	137	.81	2.1	33	.19	.62	53	.09
29	1.4	87	.33	1.6	32	.14	.60	42	.07
30	1.3	65	.23	1.3	58	.20	.61	42	.07
31	1.2	37	.12	--	--	--	.64	39	.07
TOTAL	55.89	--	40.30	49.85	--	6.39	29.86	--	4.60

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	.96	39	.10	.42	49	.06	1.8	35	.17
2	.90	46	.11	.31	50	.04	1.2	37	.12
3	.94	72	.18	.23	49	.03	.90	35	.09
4	.88	66	.16	.34	64	.06	1.1	50	.15
5	.80	47	.10	.31	48	.04	1.4	59	.22
6	.75	90	.18	.28	73	.06	1.3	60	.21
7	.64	69	.12	.26	61	.04	1.2	70	.23
8	.54	53	.08	.18	26	.01	1.1	50	.15
9	.65	45	.08	.24	32	.02	1.2	50	.16
10	.65	42	.07	.27	74	.05	1.5	53	.21
11	.54	30	.04	.32	84	.07	2.6	89	.97
12	.47	30	.04	.42	53	.06	2.8	124	1.2
13	.41	47	.05	.43	48	.06	6.2	161	3.2
14	.36	13	.01	.70	41	.08	9.5	246	6.7
15	.33	9	.01	1.3	15	.05	5.4	110	1.9
16	.29	15	.01	2.4	31	.20	1.9	52	.27
17	.27	18	.01	24	310	20	1.9	53	.27
18	.24	22	.01	70	473	89	2.7	104	.76
19	.21	18	.01	80	415	90	2.5	82	.55
20	.32	40	.03	20	333	18	2.0	48	.26
21	.82	65	.14	3.4	273	2.5	1.8	42	.20
22	.76	32	.07	2.2	197	1.2	1.6	40	.17
23	.66	17	.03	1.8	71	.35	1.3	28	.10
24	.70	18	.03	1.4	625	2.4	1.4	53	.20
25	.85	18	.04	9.0	490	12	1.4	71	.27
26	.59	20	.03	16	845	37	1.4	66	.25
27	.42	30	.03	3.8	130	1.3	1.6	72	.31
28	.34	13	.01	2.5	37	.25	1.5	108	.44
29	.70	52	.10	--	--	--	1.6	78	.34
30	.64	64	.11	--	--	--	2.1	72	.41
31	.52	46	.06	--	--	--	2.0	94	.51
TOTAL	18.15	--	2.05	242.51	--	274.93	67.90	--	20.99

05455000 RALSTON CREEK AT IOWA CITY, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1.6	33	.14	.64	82	.14	3.0	176	1.4
2	1.3	10	.04	.59	59	.09	.92	129	.32
3	1.9	28	.14	.52	41	.06	.79	129	.28
4	2.0	18	.10	.61	28	.05	.72	85	.17
5	1.1	15	.04	.59	33	.05	.62	53	.09
6	1.1	23	.07	.56	47	.07	.56	51	.08
7	1.1	32	.10	1.7	70	.32	.52	44	.06
8	1.2	22	.07	1.1	67	.20	.49	37	.05
9	1.1	47	.14	.56	69	.10	.44	40	.05
10	.99	32	.09	.56	80	.12	.47	35	.04
11	.99	31	.08	.56	69	.10	.52	30	.04
12	1.0	48	.13	.47	84	.11	.85	42	.10
13	.89	58	.14	.47	75	.10	1.4	83	.31
14	.76	28	.06	.47	60	.08	.67	60	.11
15	.73	30	.06	.42	62	.07	.42	55	.06
16	.89	46	.11	.34	72	.07	.36	155	.15
17	1.3	36	.13	.36	82	.08	.31	189	.16
18	.73	52	.10	.34	100	.09	.32	207	.18
19	1.2	55	.18	1.9	113	.58	.26	152	.11
20	.85	44	.10	.64	82	.14	.64	152	.26
21	.70	48	.09	.47	103	.13	.24	113	.07
22	.64	56	.10	.49	126	.17	1.5	172	.70
23	.59	45	.07	.85	125	.29	1.6	163	.70
24	.52	24	.03	2.1	202	1.1	.36	130	.13
25	.52	46	.06	.68	135	.25	.31	116	.10
26	.54	68	.10	.57	125	.19	.26	119	.08
27	2.8	95	.72	.52	131	.18	.21	149	.08
28	1.5	73	.30	.47	131	.17	.17	132	.06
29	1.0	94	.25	.44	145	.17	.15	71	.03
30	.85	96	.22	.42	152	.17	.15	44	.02
31	--	--	--	1.3	157	.55	--	--	--
TOTAL	32.39	--	3.96	21.71	--	5.99	19.23	--	5.99

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	.14	35	.01	.05	23	0	0	0	0
2	.12	31	.01	.05	71	.01	0	0	0
3	.12	30	.01	.05	127	.02	0	0	0
4	.48	88	.11	.04	137	.01	1.1	112	1.6
5	.42	118	.13	.04	143	.02	3.0	218	2.8
6	.27	56	.04	.03	148	.01	.19	54	.03
7	.47	36	.05	.03	138	.01	.10	38	.01
8	.21	28	.02	.12	177	.06	.07	17	0
9	.17	45	.02	.05	120	.02	.17	16	.01
10	11	1900	212	.05	52	.01	.11	41	.01
11	3.3	1160	26	.04	97	.01	.08	83	.02
12	.64	36	.06	.04	137	.01	.06	95	.02
13	.70	210	.40	.06	72	.01	.09	66	.02
14	.32	158	.14	.11	84	.02	.08	42	.01
15	.32	154	.13	.03	76	.01	.05	46	.01
16	.31	87	.07	.03	65	.01	.04	78	.01
17	.29	48	.04	.02	51	0	.05	96	.01
18	.54	183	.97	.02	54	0	.06	111	.02
19	.40	233	.41	.03	83	.01	.74	181	.50
20	.25	127	.09	.04	96	.01	.17	44	.02
21	.23	180	.11	.02	80	0	.11	36	.01
22	.17	150	.07	.02	82	0	.09	72	.02
23	.83	71	.16	.02	98	.01	.06	49	.01
24	.31	20	.02	.01	121	0	.06	70	.01
25	4.5	121	6.3	.01	71	0	.17	107	.05
26	1.3	153	2.2	0	0	0	.13	47	.02
27	.31	38	.03	0	0	0	.10	21	.01
28	.14	38	.01	0	0	0	.08	20	0
29	.10	21	.01	0	0	0	.07	10	0
30	.08	17	0	0	0	0	.06	44	.01
31	.07	25	0	0	0	0	--	--	--
TOTAL	28.51	--	249.62	1.01	--	.27	7.09	--	5.24

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 574.10
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 620.33

05455000 RALSTON CREEK AT IOWA CITY, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	METHOD OF ANALYSIS
JULY 10...	2010	24.0	73	6620	1310	46	53	70	88	96	100	SPWC

C Chemically dispersed
P Pipet
S Sieve
W In distilled water

05464130 FOURMILE CREEK NEAR LINCOLN, IOWA

LOCATION.--Lat 42°13'32", long 92°36'39", in SW1/4 sec.28, T.86 N., R.15 W., Tama County, 10 ft upstream from gaging station on bridge on county highway, 1 mile upstream from Half Mile Creek and 4.7 miles southeast of Lincoln.
DRAINAGE AREA.--13.78 sq mi.
PERIOD OF RECORD.--Specific conductance: October 1969 to current year (partial-record station).
Water temperatures: October 1969 to current year (partial-record station).
Sediment records: October 1969 to current year.
EXTREMES.--Current year: Sediment concentrations: Maximum daily, 1,460 mg/l May 24; minimum daily, 25 mg/l Jan. 16.
Sediment loads: Maximum daily, 571 tons Mar. 13; minimum daily, 0.07 ton Jan. 4.

Period of record: Sediment concentrations: Maximum daily, 2,310 mg/l May 14, 1970; minimum daily, 15 mg/l July 5-7, 1970.
Sediment loads: Maximum daily, 1,900 tons Mar. 2, 1970; minimum daily, 0.03 ton Aug. 30, 31, Sept. 1, 2, 1970.
REMARKS.--Flow affected by ice Nov. 23, Dec. 5, 6, 14, 15, 24-26, Jan. 6-14, Feb. 4-7, Feb. 18 to Mar. 12.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	500	580	---	---	---	---	---	480	---	---	---
2	---	---	---	---	---	---	---	410	---	---	---	---
3	---	---	---	---	480	---	---	---	---	---	---	450
4	450	---	---	---	---	---	470	---	---	390	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	390	---	---	---	---	---	---	---	---	---
8	---	---	---	390	---	---	---	---	---	470	---	---
9	350	470	---	---	---	430	---	---	430	---	---	490
10	490	---	---	---	---	---	---	470	---	---	---	---
11	500	---	---	---	520	---	320	---	---	---	---	440
12	---	---	---	420	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	410	---
14	---	---	380	---	---	130	---	---	---	---	---	---
15	---	500	---	---	---	---	---	380	---	420	---	---
16	---	---	---	---	---	---	---	---	360	---	---	---
17	---	---	---	---	420	340	---	---	---	---	420	---
18	---	---	---	---	160	---	350	---	---	---	---	450
19	450	---	---	---	80	---	---	---	---	---	---	---
20	---	---	---	---	---	410	---	---	---	---	---	---
21	---	---	390	---	---	---	---	---	---	---	---	---
22	---	---	---	480	---	---	---	---	---	370	---	---
23	---	520	---	---	---	---	---	---	450	---	---	---
24	---	---	---	---	---	---	---	410	---	---	---	480
25	520	---	---	---	---	---	380	430	---	---	---	---
26	---	---	360	---	190	450	---	---	---	490	420	---
27	460	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	480	---	---	---	---	---	---	---	---
29	---	500	---	---	---	450	---	---	---	390	---	---
30	---	---	---	---	---	---	---	---	550	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
YEAR	420											

05464130 FOURMILE CREEK NEAR LINCOLN, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	9.0	8.0	---	---	---	---	---	19.5	---	---	---
2	---	---	---	---	---	---	---	11.0	---	---	---	---
3	---	---	---	---	0	---	---	---	---	---	---	25.5
4	18.0	---	---	---	---	---	8.0	---	---	20.5	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	0	---	---	---	---	---	---	---	---	---
8	---	---	---	0	---	---	---	---	---	21.0	---	---
9	10.5	10.5	---	---	---	0	---	---	21.5	---	---	25.0
10	10.0	---	---	---	---	---	---	17.5	---	---	---	---
11	13.5	---	---	---	0	---	14.5	---	---	---	---	16.5
12	---	---	---	0	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	29.0	---
14	---	---	0	---	---	3.5	---	---	25.5	---	---	---
15	---	6.0	---	---	---	---	---	21.0	---	23.0	---	---
16	---	---	---	---	---	---	---	---	24.0	---	---	---
17	---	---	---	---	0.5	8.0	---	---	---	---	26.5	---
18	---	---	---	---	1.0	---	12.0	---	---	---	---	17.0
19	11.5	---	---	---	1.5	---	---	---	---	---	---	---
20	---	---	---	---	---	3.5	---	---	---	---	---	---
21	---	---	0	---	---	---	---	---	---	---	---	---
22	---	---	---	0	---	---	---	---	---	22.0	---	---
23	---	0	---	---	---	---	---	---	28.5	---	---	---
24	---	---	---	---	---	---	---	11.5	---	---	---	16.0
25	14.5	---	---	---	---	---	16.5	17.0	---	---	---	---
26	---	---	---	---	1.0	4.0	---	---	---	22.0	17.0	---
27	11.0	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	0	---	---	---	---	---	---	---	---
29	---	8.0	0	---	---	3.0	---	---	---	18.0	---	---
30	---	---	---	---	---	---	---	---	24.5	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
YEAR	11.5											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
05464130 - FOURMILE CREEK NEAR LINCOLN, IOWA (LAT 42 13 32 LONG 092 36 39)					
OCT., 1970					
27...	1300	8.3	--	--	11.0
DEC.					
01...	1355	7.6	580	8.1	--
JAN., 1971					
11...	1355	4.4	--	--	.0
FEB.					
17...	1330	2.4	520	8.5	.5
MAR.					
29...	1530	9.0	450	8.2	3.0
MAY					
10...	1310	3.5	470	--	17.0
JUNE					
14...	--	12	--	8.0	25.5
JULY					
26...	1355	3.0	490	--	22.0
SEP.					
09...	1550	.31	490	--	25.0

05464130 FOURMILE CREEK NEAR LINCOLN, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4.7	91	1.2	7.1	171	3.3	7.8	80	1.7
2	4.2	189	2.1	7.0	164	3.1	7.3	80	1.6
3	3.7	171	1.7	6.5	157	2.8	7.4	80	1.6
4	3.5	165	1.6	6.4	149	2.6	6.4	80	1.4
5	3.4	161	1.5	6.3	140	2.4	7.0	83	1.6
6	3.2	160	1.4	6.1	131	2.2	7.4	113	2.3
7	3.1	159	1.3	5.4	122	1.8	6.5	90	1.6
8	6.1	167	3.8	5.6	112	1.7	6.5	82	1.4
9	147	469	191	12	230	8.4	5.8	75	1.2
10	45	315	38	12	293	9.5	6.0	68	1.1
11	23	272	17	10	265	7.2	6.0	62	1.0
12	20	262	14	9.5	250	6.4	5.7	56	.86
13	17	250	11	8.9	235	5.6	5.6	49	.74
14	15	239	9.7	8.4	220	5.0	6.0	44	.71
15	13	229	8.0	7.9	211	4.5	5.6	105	1.6
16	12	219	7.1	7.8	198	4.2	5.5	110	1.6
17	11	208	6.2	7.6	188	3.9	5.3	106	1.5
18	11	197	5.9	7.2	178	3.5	5.5	102	1.5
19	10	188	5.1	8.6	173	4.0	5.3	98	1.4
20	9.5	185	4.7	14	182	6.9	5.3	94	1.3
21	9.0	183	4.4	12	151	4.9	5.1	91	1.3
22	10	202	5.5	11	116	3.4	5.2	88	1.2
23	9.8	200	5.3	12	112	3.6	4.8	86	1.1
24	9.9	192	5.1	9.8	80	2.1	4.6	84	1.0
25	9.6	183	4.7	9.5	80	2.1	4.3	83	.96
26	8.7	155	3.6	9.0	80	1.9	4.0	81	.87
27	8.3	118	2.6	8.3	80	1.8	3.7	79	.79
28	8.1	119	2.6	8.3	80	1.8	3.4	78	.72
29	7.9	141	3.0	8.2	80	1.8	3.3	112	1.0
30	7.7	165	3.4	7.8	80	1.7	4.3	92	1.1
31	7.3	172	3.4	--	--	--	4.1	82	.91
TOTAL	461.7	--	375.9	260.2	--	114.1	170.7	--	38.66

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4.2	77	.87	3.5	56	.53	70	230	43
2	3.9	72	.76	3.5	59	.56	48	215	24
3	3.3	68	.62	3.4	62	.57	35	204	19
4	.40	65	.07	3.1	63	.53	34	195	18
5	1.6	72	.31	3.2	62	.54	37	182	18
6	3.0	84	.68	3.1	58	.49	20	172	9.3
7	3.6	102	.99	3.0	54	.44	11	162	4.8
8	4.3	124	1.4	2.9	49	.38	6.0	152	2.5
9	4.3	183	2.1	2.8	43	.33	7.2	142	2.8
10	4.4	133	1.6	2.5	37	.25	8.0	165	3.6
11	4.4	80	.95	2.4	32	.21	20	230	12
12	4.4	42	.50	2.3	32	.20	140	338	128
13	4.3	31	.36	2.3	33	.23	411	515	571
14	4.3	28	.33	2.3	37	.23	253	107	96
15	4.2	26	.29	2.3	41	.25	41	38	4.2
16	4.0	25	.27	2.4	47	.30	15	90	3.6
17	3.8	26	.27	3.4	87	.80	21	243	14
18	3.8	27	.28	20	295	16	37	289	33
19	3.8	28	.29	100	180	49	15	231	9.4
20	3.8	29	.30	60	64	14	15	158	6.4
21	3.7	44	.44	56	50	7.6	22	170	10
22	3.7	67	.67	45	50	6.1	15	168	6.8
23	3.6	64	.62	37	50	5.0	10	164	4.4
24	3.4	62	.54	33	50	4.5	8.3	161	3.6
25	3.4	59	.62	30	50	4.1	7.3	158	3.1
26	3.6	57	.55	100	475	128	6.8	155	2.8
27	3.5	55	.52	140	495	187	17	195	9.0
28	3.3	53	.47	110	290	86	13	175	6.1
29	3.6	54	.52	--	--	--	9.4	153	3.9
30	3.6	54	.52	--	--	--	8.3	146	3.5
31	3.6	55	.53	--	--	--	9.6	139	3.6
TOTAL	112.70	--	19.14	799.4	--	514.11	1371.4	--	1087.4

05464130 FOURMILE CREEK NEAR LINCOLN, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	8.3	133	3.0	4.2	90	1.0	33	1090	143
2	7.2	126	2.4	4.0	89	.96	12	360	12
3	6.7	120	2.2	3.9	87	.92	9.7	295	7.7
4	6.0	113	1.8	4.0	84	.91	8.7	265	6.2
5	5.7	109	1.7	4.0	78	.84	8.3	240	5.4
6	5.5	111	1.6	3.8	70	.72	8.2	210	4.6
7	5.4	117	1.7	3.7	62	.62	14	514	23
8	5.4	125	1.8	3.6	55	.53	8.9	300	7.2
9	5.1	136	1.9	3.5	50	.47	8.0	260	5.6
10	5.1	151	2.1	3.5	47	.44	6.8	240	4.4
11	5.3	161	2.3	3.4	46	.42	6.4	235	4.1
12	5.3	167	2.4	3.3	45	.40	7.6	235	4.8
13	5.0	168	2.3	3.3	44	.39	33	393	39
14	4.7	166	2.1	3.2	43	.37	12	320	10
15	4.7	162	2.1	3.1	42	.35	11	309	9.2
16	5.3	155	2.2	3.1	41	.34	9.7	303	7.9
17	5.3	146	2.1	3.3	40	.36	7.0	296	5.6
18	5.2	137	1.9	34	878	127	10	289	7.8
19	5.0	128	1.7	24	433	34	7.8	288	6.1
20	4.8	122	1.6	12	220	7.1	9.0	292	7.1
21	5.0	115	1.6	9.7	180	4.7	8.7	302	7.1
22	4.7	109	1.4	8.6	155	3.6	7.9	315	6.7
23	4.5	104	1.3	13	214	18	7.1	325	6.2
24	4.2	99	1.1	67	1460	300	4.9	320	4.2
25	4.0	96	1.0	22	622	38	4.6	298	3.7
26	3.9	94	.99	16	425	18	4.6	261	3.2
27	5.3	93	1.3	13	375	13	4.2	212	2.4
28	4.7	92	1.2	12	320	10	3.9	160	1.7
29	4.5	92	1.1	11	270	8.0	3.7	114	1.1
30	4.4	91	1.1	10	215	5.8	6.5	141	2.5
31	--	--	--	13	165	5.8	--	--	--
TOTAL	156.2	--	52.99	326.2	--	603.04	287.2	--	359.5

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4.9	73	.97	2.2	133	.79	.36	286	.28
2	4.4	50	.59	2.4	133	.86	.34	312	.29
3	4.1	38	.42	2.1	132	.75	.32	333	.29
4	19	151	10	2.1	130	.74	.85	340	.78
5	16	65	2.8	2.0	128	.69	.48	337	.44
6	11	58	1.7	1.9	127	.65	.32	323	.28
7	9.6	52	1.3	1.8	128	.62	.32	306	.26
8	138	830	379	1.7	131	.60	.32	283	.24
9	15	630	26	1.5	135	.55	.32	258	.22
10	69	715	185	1.3	139	.49	.31	240	.20
11	20	650	35	1.2	144	.47	.29	228	.18
12	12	450	15	1.2	149	.48	.29	219	.17
13	9.5	305	7.8	1.0	154	.42	.26	213	.15
14	7.9	210	4.5	1.0	157	.42	.23	208	.13
15	6.9	162	3.0	.96	156	.41	.23	204	.13
16	5.6	149	2.3	.88	159	.38	.20	202	.11
17	5.0	143	1.9	.85	159	.36	.23	199	.12
18	4.7	140	1.8	.78	160	.34	.27	198	.14
19	4.2	137	1.6	.85	162	.37	.34	197	.18
20	3.9	134	1.4	.74	164	.33	.39	198	.21
21	3.7	132	1.3	.68	167	.31	.27	199	.15
22	3.5	130	1.2	.62	171	.29	.22	200	.12
23	3.4	123	1.1	.58	175	.27	.31	201	.17
24	3.2	102	.88	.55	180	.27	.23	202	.13
25	3.1	80	.67	.48	183	.24	.30	207	.17
26	2.9	78	.61	.50	186	.25	.29	215	.17
27	2.8	89	.67	.58	192	.30	.28	227	.17
28	2.8	108	.82	.45	204	.25	.27	239	.17
29	2.7	127	.93	.40	221	.24	.22	253	.15
30	2.6	132	.93	.38	240	.25	.25	268	.18
31	2.4	133	.86	.38	262	.27	--	--	--
TOTAL	403.8	--	692.05	34.06	--	13.66	9.31	--	6.34

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 4392.87
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 3876.93

05464130 FOURMILE CREEK NEAR LINCOLN, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMP-ERATURE (DEG C)	NUMBER OF SAM-PLING POINTS	DIS-CHARGE (CFS)	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	
MAR. 09...	1330	.5	1	2.4	--	--	--	--	
MAY 25...	1100	9.5	1	68	13	15	68	96	

DATE	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	METHOD OF ANALY-SIS
MAR. 09...	--	2	3	7	43	79	96	100	S
MAY 25...	100	--	--	--	--	--	--	--	SVWC

C Chemically dispersed
S Sieve
V Visual accumulation tube
W In distilled water

05464133 HALF MILE CREEK NEAR GLADBROOK, IOWA

LOCATION.--Lat 42°12'41", long 92°36'39", in SW1/4 sec.33, T.86 N., R.15 W., Tama County, 10 ft upstream from gaging station on bridge on county highway, 0.8 mile upstream from mouth, and 5.3 miles northeast of Gladbrook.
DRAINAGE AREA.--1.33 sq mi.
PERIOD OF RECORD.--Specific conductance: October 1969 to current year (partial-record station).
Water temperatures: October 1969 to current year (partial-record station).
Sediment records: October 1969 to current year.
EXTREMES.--Current year: Sediment concentrations: Maximum daily, 1,270 mg/l Mar. 14; minimum daily, no flow for Sept. 29, 30.
Sediment loads: Maximum daily, 51 tons Mar. 14; minimum daily, 0 ton on many days during August and September.

Period of record: Sediment concentrations: maximum daily, 1,320 mg/l May 14, 1970; minimum daily, no flow for Sept. 29, 30, 1971.
Sediment loads: Maximum daily, 93 tons Mar. 2, 1970; minimum daily, 0 ton on many days in 1970 and 1971.
REMARKS.--Flow affected by ice Nov. 22, Dec. 4, 5, 19, Dec. 29 to Mar. 12.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	470	500	---	---	---	---	---	420	---	---	---
2	---	---	---	---	---	---	---	340	---	---	---	---
3	---	---	---	---	400	---	---	---	---	---	---	390
4	420	---	---	---	---	---	390	---	---	370	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	340	---	---	---	---	---	---	---	---	---
8	400	---	---	310	---	---	---	---	---	420	---	---
9	440	---	---	---	---	410	---	---	380	---	---	---
10	450	---	---	---	---	---	---	400	---	---	---	---
11	470	---	---	330	400	---	370	---	---	---	---	370
12	---	---	---	310	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	360	---
14	---	---	340	---	---	160	---	---	---	---	---	---
15	---	440	---	---	---	---	---	99	---	350	---	---
16	---	---	---	---	---	---	---	---	320	---	---	---
17	---	---	---	---	405	220	---	---	---	---	380	---
18	---	---	---	---	140	---	310	---	---	---	---	380
19	400	---	---	---	100	---	---	---	---	---	---	---
20	---	---	---	---	---	320	---	---	---	---	---	---
21	---	---	370	---	---	---	---	---	---	---	---	---
22	---	---	---	360	---	---	---	---	---	310	---	---
23	---	450	---	---	---	---	---	---	360	---	---	---
24	---	---	---	---	---	---	---	430	---	---	---	390
25	450	---	---	---	---	---	340	405	---	---	---	---
26	---	---	---	---	180	300	---	---	---	---	380	---
27	410	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	400	---	---	---	---	---	---	---	---
29	---	480	350	---	---	340	---	---	---	360	---	---
30	---	---	---	---	---	---	---	---	380	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

05464133 HALF MILE CREEK NEAR GLADBOOK, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.5	8.0	---	---	---	---	---	19.0	---	---	---
2	---	---	---	---	---	---	---	10.5	---	---	---	---
3	---	---	---	---	0	---	---	---	---	---	---	24.5
4	15.5	---	---	---	---	---	6.0	---	---	20.5	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	0	---	---	---	---	---	---	---	---	21.0
8	12.0	---	---	0	---	---	---	---	---	20.5	---	---
9	12.0	10.0	---	---	---	1.5	---	---	---	---	---	---
10	10.0	---	---	---	---	---	---	17.0	---	---	---	---
11	13.5	---	---	0	0	---	14.5	---	---	---	---	16.5
12	---	---	---	0	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	27.0	---
14	---	---	0	---	---	4.5	---	---	25.5	---	---	---
15	---	6.5	---	---	---	---	---	20.0	---	21.5	---	---
16	---	---	---	---	---	---	---	---	21.5	---	---	---
17	---	---	---	---	0.5	6.5	---	---	---	---	25.0	---
18	---	---	---	---	1.0	---	11.0	---	---	---	---	12.0
19	11.5	---	---	---	1.5	---	---	---	---	---	---	---
20	---	---	---	---	---	1.5	---	---	---	---	---	---
21	---	---	0	---	---	---	---	---	---	---	---	---
22	---	---	---	0	---	---	---	---	---	21.5	---	---
23	---	0	---	---	---	---	---	---	25.5	---	---	---
24	---	---	---	---	---	---	---	11.0	---	---	---	16.0
25	15.0	---	---	---	---	---	---	9.5	---	---	---	---
26	---	---	---	---	1.0	3.5	---	---	---	---	17.0	---
27	11.0	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	0	---	---	---	---	---	---	---	---
29	---	6.5	0	---	---	---	---	---	---	18.0	---	---
30	---	---	---	---	---	---	---	---	24.0	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)
OCT., 1970					
09...	1255	3.6	--	--	13.0
27...	1210	.44	--	--	11.0
DEC.					
01...	1440	.49	500	8.0	8.0
JAN., 1971					
11...	1250	.20	--	--	.0
FEB.					
17...	1210	.16	490	8.2	.5
MAR.					
29...	1450	1.6	350	7.9	3.0
MAY					
10...	1200	.36	--	--	17.0
11...	1040	.36	410	--	17.5
JUNE					
14...	1420	.55	--	7.9	25.5
JULY					
26...	1225	.25	490	--	21.5
SEP.					
00...	1505	.02	470	--	--

05464133 HALF MILE CREEK NEAR GLADBROOK, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	.20	59	.03	.43	125	.15	.53	55	.08
2	.17	98	.04	.43	120	.14	.48	45	.06
3	.15	138	.06	.42	120	.14	.50	65	.09
4	.14	178	.07	.41	115	.13	.52	315	.44
5	.14	189	.07	.39	110	.12	.46	235	.29
6	.13	184	.06	.39	105	.11	.40	210	.23
7	.13	176	.06	.36	105	.10	.44	185	.22
8	1.9	215	1.4	.37	102	.10	.46	175	.22
9	6.3	135	3.2	1.2	640	2.1	.41	170	.19
10	1.4	68	.26	.80	315	.68	.43	165	.19
11	1.0	74	.20	.68	202	.37	.43	160	.19
12	.87	75	.18	.63	142	.24	.42	155	.18
13	.76	77	.16	.60	110	.18	.41	155	.17
14	.66	79	.14	.57	95	.15	.38	150	.15
15	.62	81	.14	.55	90	.13	.40	145	.16
16	.59	84	.13	.54	85	.12	.43	140	.16
17	.55	85	.13	.52	82	.12	.40	135	.15
18	.51	88	.12	.50	82	.11	.42	130	.15
19	.49	90	.12	.67	205	.37	.50	365	.49
20	.47	89	.11	.88	260	.62	.33	265	.24
21	.45	86	.10	.76	175	.36	.35	255	.24
22	.51	79	.11	.90	310	.75	.37	255	.25
23	.49	71	.09	.60	200	.32	.31	245	.21
24	.52	59	.08	.60	160	.26	.31	230	.19
25	.49	50	.07	.58	170	.27	.27	210	.15
26	.48	49	.06	.56	175	.26	.29	190	.15
27	.48	83	.11	.56	180	.27	.27	175	.13
28	.50	92	.12	.54	190	.28	.24	155	.10
29	.48	80	.10	.52	205	.29	.24	139	.09
30	.47	122	.15	.55	140	.21	.25	130	.09
31	.44	125	.15	--	--	--	.25	120	.08
TOTAL	22.49	--	7.82	17.51	--	9.45	11.90	--	5.73

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	.25	111	.07	.14	27	.01	.90	250	.61
2	.24	100	.06	.14	28	.01	.72	215	.42
3	.23	91	.06	.14	28	.01	.50	210	.28
4	.20	82	.04	.13	28	.01	.49	185	.24
5	.21	72	.04	.13	29	.01	.48	165	.21
6	.21	64	.04	.12	29	.01	.43	145	.17
7	.22	54	.03	.11	29	.01	.36	125	.12
8	.21	46	.03	.10	30	.01	.28	105	.08
9	.21	44	.02	.11	31	.01	.25	105	.07
10	.21	42	.02	.11	32	.01	.43	210	.24
11	.20	49	.03	.11	32	.01	.90	465	1.1
12	.20	36	.02	.11	33	.01	5.5	755	11
13	.20	34	.02	.11	34	.01	14	1080	41
14	.19	32	.02	.12	34	.01	15	1270	51
15	.19	31	.02	.12	35	.01	2.4	1160	7.5
16	.19	30	.02	.13	35	.01	1.4	945	3.6
17	.18	28	.01	.20	80	.04	2.1	750	4.3
18	.18	27	.01	4.0	210	2.3	2.8	610	4.6
19	.18	25	.01	10	270	7.3	.93	495	1.2
20	.17	24	.01	8.0	115	2.5	1.6	400	1.7
21	.18	23	.01	6.4	95	1.6	2.1	310	1.8
22	.18	21	.01	5.4	80	1.2	1.8	230	1.1
23	.18	22	.01	4.8	70	.91	.88	155	.37
24	.17	23	.01	4.3	60	.70	.85	100	.23
25	.17	24	.01	4.0	50	.54	.84	60	.14
26	.17	25	.01	22	310	18	.78	45	.09
27	.16	25	.01	9.0	295	7.2	2.6	240	1.7
28	.16	26	.01	1.8	270	1.3	1.8	260	1.1
29	.16	27	.01	--	--	--	1.2	215	.70
30	.15	27	.01	--	--	--	1.2	190	.62
31	.15	27	.01	--	--	--	1.4	185	.70
TOTAL	5.90	--	.69	81.83	--	43.75	66.72	--	137.99

05464133 HALF MILE CREEK NEAR GLADBROOK, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	.89	180	.43	.49	137	.18	5.0	107	1.4
2	3.7	275	2.7	.45	132	.16	3.0	104	.84
3	.80	230	.50	.42	129	.15	1.8	102	.50
4	.69	225	.42	.40	125	.14	1.3	100	.35
5	.66	220	.39	.37	122	.12	.92	98	.24
6	.65	215	.38	.34	118	.11	.77	95	.20
7	.65	210	.37	.31	115	.10	.73	93	.18
8	.62	205	.34	.30	112	.09	.58	91	.14
9	.57	200	.31	.30	108	.09	.51	89	.12
10	.55	195	.29	.34	105	.10	.48	87	.11
11	.63	210	.36	.36	103	.10	1.8	151	.73
12	.63	215	.37	.45	102	.12	1.1	228	.68
13	.57	200	.31	.54	101	.15	.59	219	.35
14	.55	185	.27	.47	100	.13	.54	214	.31
15	.54	175	.26	.47	100	.13	.52	210	.29
16	.86	190	.44	1.0	150	.41	.48	208	.27
17	.82	215	.48	.81	118	.26	.45	200	.24
18	.73	145	.29	.73	112	.22	.48	190	.25
19	.68	121	.22	3.4	201	3.6	.43	179	.21
20	.68	113	.21	1.6	156	.67	.40	169	.18
21	.72	105	.20	1.3	135	.47	.38	158	.16
22	.64	97	.17	1.0	128	.35	.37	148	.15
23	.54	89	.13	1.2	122	.40	.34	138	.13
24	.48	81	.10	7.8	215	4.5	.34	134	.12
25	.46	73	.09	1.3	124	.44	.31	133	.11
26	.46	73	.09	.95	132	.34	.32	132	.11
27	.84	161	.37	.73	128	.25	.35	131	.12
28	.63	151	.26	.60	124	.20	.26	130	.09
29	.53	145	.21	.56	119	.18	.26	129	.09
30	.52	141	.20	.56	115	.17	.37	128	.13
31	--	--	--	.64	111	.19	--	--	--
TOTAL	22.29	--	11.16	30.19	--	14.52	25.18	--	8.80

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	.30	123	.10	.12	106	.03	.01	172	0
2	.28	113	.09	.13	107	.04	.01	175	0
3	.27	98	.07	.12	108	.03	.01	178	0
4	1.2	122	.40	.11	108	.03	.06	193	.03
5	.75	101	.20	.12	109	.04	.04	198	.02
6	.54	98	.14	.11	110	.03	.02	191	.01
7	.47	98	.12	.11	111	.03	.02	185	.01
8	3.3	180	8.4	.10	112	.03	.02	178	.01
9	1.0	121	.33	.08	114	.02	.02	173	.01
10	1.8	132	.64	.06	114	.02	.02	167	.01
11	1.3	129	.45	.05	116	.02	.02	163	.01
12	.87	121	.28	.05	116	.02	.01	166	0
13	.71	117	.22	.05	117	.02	.01	168	0
14	.64	112	.19	.04	117	.01	.01	172	0
15	.50	107	.14	.04	118	.01	.01	174	0
16	.47	104	.13	.04	118	.01	.01	177	0
17	.42	103	.12	.03	119	.01	.01	182	0
18	.37	102	.10	.03	120	.01	.01	181	0
19	.31	101	.08	.05	146	.02	.02	172	.01
20	.34	100	.09	.03	152	.01	.01	159	0
21	.31	100	.08	.03	152	.01	.01	147	0
22	.24	100	.06	.02	152	.01	.01	136	0
23	.24	101	.07	.02	153	.01	.01	124	0
24	.27	102	.07	.02	154	.01	.01	113	0
25	.24	102	.07	.02	154	.01	.02	108	.01
26	.24	102	.07	.02	155	.01	.01	105	0
27	.19	103	.05	.02	157	.01	.01	103	0
28	.19	103	.05	.02	160	.01	.01	101	0
29	.15	104	.04	.02	162	.01	0	0	0
30	.11	104	.03	.01	166	0	0	0	0
31	.12	105	.03	.01	169	0	--	--	--
TOTAL	18.14	--	12.91	1.68	--	.53	.44	--	.13

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 304.27
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 253.48

05464133 HALF MILE CREEK NEAR GLADBROOK, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM
NOV. 09...	0737	10.0	--	1.9	1000	5.1	45	64	70	72	94
MAY 25...	1050	10.0	1	1.3	--	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	METHOD OF ANALYSIS
NOV. 09...	98	100	--	--	--	--	--	--	--	--	--	SPWC
MAY 25...	--	--	50	52	54	60	74	80	89	92	100	SVWC

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

05464137 FOURMILE CREEK NEAR TRAER, IOWA

LOCATION.--Lat 42°12'06", long 92°33'44", near center of sec.2, T.85 N., R.15 W., Tama County, 10 ft upstream from gaging station on bridge on county highway T69, 2 miles upstream from mouth, and 5.0 miles northwest of Traer.
DRAINAGE AREA.--19.51 sq mi.
PERIOD OF RECORD.--Specific conductance: October 1969 to current year (partial-record station).
Water temperatures: October 1969 to current year (partial-record station).
Sediment records: October 1969 to current year.
EXTREMES.--Current year: Sediment concentrations: Maximum daily, 2,000 mg/l Mar. 14; minimum daily, 39 mg/l April 26.
Sediment loads: Maximum daily, 2,060 tons Mar. 13; minimum daily, 0.05 ton Sept. 16-18.

Period of record: Sediment concentrations: Maximum daily, 2,200 mg/l Mar. 3, 1970; minimum daily, 23 mg/l May 2, 6-8, 1970.
Sediment loads: Maximum daily, 2,060 tons Mar. 13, 1971; minimum daily, 0.05 ton Sept. 16-18, 1971.
REMARKS.--Flow affected by ice Nov. 23, Dec. 24-27, Jan. 4-26, Feb. 18 to Mar. 12.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	490	520	---	---	---	---	---	450	---	---	625
2	---	---	---	---	---	---	---	390	---	---	---	---
3	---	---	---	---	470	---	---	---	---	---	---	450
4	480	---	---	---	---	---	460	---	---	400	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	390	---	---	---	---	---	---
7	---	---	390	---	---	---	---	---	---	---	---	---
8	---	---	---	360	---	---	---	---	---	400	---	---
9	380	480	---	---	---	---	---	---	440	---	---	440
10	500	---	---	---	---	---	---	445	---	---	---	---
11	460	---	---	435	470	---	340	---	---	---	---	470
12	---	---	---	420	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	390	---
14	---	---	390	---	---	190	---	---	---	---	---	---
15	---	490	---	---	---	---	---	320	---	440	---	---
16	---	---	---	---	---	---	---	---	370	---	---	---
17	---	---	---	---	550	380	---	---	---	---	420	---
18	---	---	---	---	210	---	340	---	---	---	---	420
19	480	---	---	---	110	---	---	---	---	---	---	---
20	---	---	---	---	---	420	---	---	---	---	---	---
21	---	---	390	---	---	---	---	---	---	---	---	---
22	---	---	---	480	---	---	---	---	---	360	---	---
23	---	510	---	---	---	---	---	---	420	---	---	---
24	---	---	---	---	---	---	---	420	---	---	---	470
25	460	---	---	---	---	---	380	470	---	---	---	---
26	---	---	---	---	310	420	---	---	---	510	470	---
27	470	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	480	---	---	---	---	---	---	---	---
29	---	460	400	---	---	430	---	---	---	390	---	---
30	---	---	---	---	---	---	---	---	530	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

05464137 FOURMILE CREEK NEAR TRAER, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	8.0	8.0	---	---	---	---	---	21.0	---	---	20.0
2	---	---	---	---	---	---	---	11.5	---	---	---	---
3	---	---	---	---	0	---	---	---	---	---	---	25.0
4	15.0	---	---	---	---	---	9.0	---	---	21.5	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	1.0	---	---	---	---	---	---
7	---	---	0	---	---	---	---	---	---	---	---	---
8	---	---	---	0	---	---	---	---	---	21.5	---	---
9	10.5	10.0	---	---	---	---	---	---	23.0	---	---	21.0
10	10.0	---	---	---	---	---	---	15.5	---	---	---	---
11	13.0	---	---	0	0	---	14.5	---	---	---	---	17.0
12	---	---	---	0	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	27.0	---
14	---	---	0	---	---	2.0	---	---	21.0	---	---	---
15	---	5.5	---	---	---	---	---	23.0	---	24.0	---	---
16	---	---	---	---	---	---	---	---	25.0	---	---	---
17	---	---	---	---	0	7.0	---	---	---	---	26.0	---
18	---	---	---	---	1.0	---	13.0	---	---	---	---	13.5
19	12.0	---	---	---	1.0	---	---	---	---	---	---	---
20	---	---	---	---	---	4.5	---	---	---	---	---	---
21	---	---	0	---	---	---	---	---	---	---	---	---
22	---	---	---	0	---	---	---	---	---	24.0	---	---
23	---	0	---	---	---	---	---	---	28.0	---	---	---
24	---	---	---	---	---	---	---	11.5	---	---	---	22.0
25	14.5	---	---	---	---	---	17.0	9.0	---	---	---	---
26	---	---	---	---	1.5	4.0	---	---	---	---	18.5	---
27	13.0	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	0	---	---	---	---	---	---	---	---
29	---	8.0	0	---	---	2.0	---	---	---	19.5	---	---
30	---	---	---	---	---	---	---	---	25.5	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT., 1970					
09...	1215	175	--	--	11.0
27...	1110	11	--	--	13.0
DEC.					
01...	1230	10	520	7.8	8.0
JAN., 1971					
11...	1210	5.6	--	--	.0
FEB.					
17...	1100	3.4	550	8.2	.0
MAR.					
29...	1410	15	430	8.1	2.0
MAY					
10...	1040	5.5	445	--	15.0
JUNE					
14...	1220	12	--	8.2	21.0
JULY					
26...	1155	3.9	510	--	--
SEP.					
01...	1020	.33	625	--	20.0
09...	1405	.39	440	--	21.0

05464137 FOURMILE CREEK NEAR TRAER, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	5.5	75	1.1	9.5	163	4.2	10	115	3.1
2	5.0	108	1.5	9.5	156	4.0	9.3	122	3.1
3	4.5	136	1.7	9.2	148	3.7	9.3	120	3.0
4	4.2	150	1.7	8.9	140	3.4	8.5	115	2.6
5	4.2	147	1.7	8.8	130	3.1	7.9	110	2.3
6	3.9	142	1.5	8.7	122	2.9	9.5	183	4.7
7	3.8	140	1.4	8.2	112	2.5	8.8	187	4.4
8	5.6	153	2.8	8.2	102	2.3	8.7	175	4.1
9	119	1040	420	15	216	9.3	8.1	166	3.6
10	44	410	49	15	198	8.0	8.1	156	3.4
11	28	290	22	13	195	6.8	8.7	143	3.4
12	24	205	13	12	193	6.3	8.1	132	2.9
13	21	192	11	11	191	5.7	8.3	119	2.7
14	18	182	8.8	11	189	5.6	8.5	131	3.0
15	16	174	7.5	10	186	5.0	8.3	146	3.3
16	15	170	6.9	10	182	4.9	8.0	140	3.0
17	14	167	6.3	9.7	178	4.7	7.3	130	2.6
18	13	166	5.8	9.3	175	4.4	7.5	120	2.4
19	12	162	5.2	10	178	4.8	6.8	136	2.5
20	12	160	5.2	16	193	8.3	7.1	151	2.9
21	11	157	4.7	14	179	6.8	7.2	145	2.8
22	12	165	5.3	13	177	6.2	7.3	138	2.7
23	12	154	5.0	14	174	6.6	6.3	141	2.4
24	12	131	4.2	13	170	6.0	6.4	208	3.6
25	12	116	3.8	12	161	5.2	6.6	200	3.6
26	11	136	4.0	10	150	4.1	6.4	192	3.3
27	11	170	5.0	10	136	3.7	6.2	185	3.1
28	11	172	5.1	9.8	120	3.2	6.1	177	2.9
29	10	171	4.6	10	108	2.9	6.2	170	2.8
30	10	169	4.6	10	107	2.9	6.6	165	2.9
31	9.7	167	4.4	--	--	--	6.5	160	2.8
TOTAL	494.4	--	624.8	328.8	--	147.5	238.6	--	95.9

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	6.5	154	2.7	4.1	186	2.1	110	395	117
2	5.9	148	2.4	3.9	176	1.9	80	280	60
3	4.3	132	1.5	4.0	167	1.8	58	230	36
4	3.0	100	.81	4.1	162	1.8	56	210	32
5	4.2	116	1.3	3.3	157	1.4	60	205	33
6	5.0	115	1.6	4.5	152	1.8	25	315	21
7	5.4	113	1.6	3.9	147	1.5	18	500	24
8	5.5	110	1.6	3.7	142	1.4	10	520	14
9	5.6	106	1.6	3.6	136	1.3	11	355	11
10	5.6	138	2.1	3.6	131	1.3	20	230	12
11	5.7	146	2.2	3.4	125	1.1	120	340	110
12	5.7	159	2.4	3.3	118	1.1	230	1260	782
13	5.6	157	2.4	3.2	112	.97	384	1990	2060
14	5.6	153	2.3	3.3	109	.97	306	2000	1650
15	5.5	148	2.2	3.3	112	1.0	58	1340	210
16	5.5	143	2.1	3.4	120	1.1	24	780	51
17	5.4	137	2.0	4.4	175	2.1	26	530	37
18	5.3	131	1.9	50	1020	138	43	600	70
19	5.3	125	1.8	150	185	75	29	379	30
20	5.2	119	1.7	120	160	52	23	182	11
21	5.2	115	1.6	94	150	38	29	192	15
22	5.1	108	1.5	70	145	27	25	215	15
23	5.1	98	1.3	58	135	21	20	200	11
24	5.0	90	1.2	48	120	16	15	182	7.4
25	5.3	89	1.3	40	100	11	13	162	5.7
26	4.9	143	1.9	90	435	106	12	159	5.2
27	4.8	131	1.7	200	440	238	21	188	11
28	4.8	120	1.6	160	580	251	22	188	11
29	4.9	139	1.8	--	--	--	15	207	8.4
30	4.6	202	2.5	--	--	--	16	206	8.9
31	4.2	196	2.2	--	--	--	17	200	9.2
TOTAL	159.7	--	56.81	1143.0	--	997.64	1896	--	5478.8

05464137 FOURMILE CREEK NEAR TRAER, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	12	192	6.2	7.0	68	1.3	37	1060	126
2	11	181	5.4	6.5	61	1.1	13	51	1
3	10	184	5.0	6.3	57	.97	12	315	1
4	9.9	179	4.8	6.5	66	1.2	11	225	6.7
5	9.7	171	4.5	6.3	74	1.3	10	170	4.6
6	9.6	168	4.4	6.1	72	1.2	10	130	3.5
7	9.4	165	4.2	5.9	68	1.1	16	635	27
8	8.7	159	3.7	5.8	65	1.0	10	350	9.5
9	8.6	148	3.4	5.6	62	.94	9.8	225	6.0
10	9.4	139	3.5	5.5	56	.83	9.1	180	4.4
11	9.0	213	5.2	5.5	44	.65	9.4	155	3.9
12	9.1	192	4.7	5.3	48	.69	9.2	138	3.4
13	8.6	153	3.6	5.3	60	.86	30	762	62
14	8.1	135	3.0	5.1	78	1.1	14	458	17
15	8.0	122	2.6	4.9	98	1.3	11	400	12
16	9.1	159	4.3	4.9	104	1.4	9.5	375	9.6
17	9.8	207	5.5	5.4	150	2.2	8.9	350	8.4
18	9.1	141	3.5	38	465	48	11	490	15
19	8.7	112	2.6	32	470	41	8.8	380	9.0
20	8.3	98	2.2	17	280	13	8.1	290	6.3
21	8.7	127	3.0	13	200	7.0	7.5	250	5.1
22	7.9	74	1.6	12	155	5.0	7.2	225	4.4
23	7.5	58	1.2	12	170	5.5	6.7	220	4.0
24	7.1	49	.94	72	1340	296	6.3	218	3.7
25	6.8	44	.81	27	720	52	6.1	215	3.5
26	6.6	39	.69	20	415	22	6.1	205	3.4
27	9.0	134	3.3	17	290	13	5.6	190	2.9
28	8.2	93	2.1	14	212	8.0	5.5	175	2.6
29	7.5	82	1.7	13	150	5.3	5.4	155	2.3
30	7.3	75	1.5	12	110	3.6	8.5	365	7.5
31	--	--	--	12	110	3.6	--	--	--
TOTAL	262.7	--	99.14	408.9	--	542.14	322.7	--	401.7

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	5.2	135	1.9	2.6	94	.66	.37	96	.10
2	4.6	95	1.2	3.1	103	.86	.32	92	.08
3	5.5	75	1.1	2.5	103	.70	.38	122	.13
4	20	225	12	2.4	103	.67	.74	125	.25
5	12	70	2.3	2.1	102	.58	2.5	180	1.2
6	9.0	45	1.1	2.1	99	.56	2.0	127	.69
7	7.9	45	.96	2.0	96	.52	.54	80	.12
8	125	1110	555	1.9	95	.49	1.1	57	.17
9	17	540	25	1.8	94	.46	.83	61	.14
10	73	738	228	1.6	93	.40	.35	60	.06
11	25	570	38	1.4	93	.35	.32	65	.06
12	14	365	14	1.3	107	.38	.30	77	.06
13	11	285	8.5	1.2	115	.37	.33	85	.08
14	9.1	235	5.8	1.1	117	.35	.29	88	.07
15	8.0	215	4.6	1.1	116	.34	.28	85	.06
16	6.9	200	3.7	.92	110	.27	.25	78	.05
17	6.4	190	3.3	.84	99	.22	.24	76	.05
18	6.0	175	2.8	.79	97	.21	.26	77	.05
19	5.4	160	2.3	1.1	103	.31	.55	88	.13
20	5.0	135	1.8	.94	108	.27	.44	92	.11
21	4.7	105	1.3	.73	108	.21	.36	92	.09
22	4.4	82	.97	.77	107	.22	.39	90	.09
23	4.3	85	.99	.67	102	.18	.49	93	.12
24	4.0	110	1.2	1.1	104	.31	.42	100	.11
25	3.8	150	1.5	1.2	101	.33	.48	104	.13
26	3.7	154	1.5	.99	90	.24	.46	100	.12
27	3.5	134	1.3	.47	80	.10	.42	93	.11
28	3.6	102	.99	.44	78	.09	.40	84	.09
29	3.2	92	.79	.37	84	.08	.33	77	.07
30	3.1	91	.76	.38	92	.09	.38	75	.08
31	2.9	91	.71	.36	96	.09	--	--	--
TOTAL	417.2	--	925.37	40.27	--	10.91	16.52	--	4.67

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 5728.79
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 9385.38

05464137 FOURMILE CREEK NEAR TRAER, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM
OCT.											
09...	0805	10.0	--	195	1650	869	40	44	64	79	94
FEB.											
17...	1115	.0	1	34	--	--	--	--	--	--	--
MAY											
25...	1015	9.0	1	27	--	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	METHOD OF ANALYSIS
OCT.												
09...	98	--	--	--	--	--	--	--	--	--	--	SPWC
FEB.												
17...	--	--	--	--	--	--	6	12	58	97	100	S
MAY												
25...	--	36	41	71	99	100	--	--	--	--	--	SVWC

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

05469720 MISSISSIPPI RIVER AT BURLINGTON, IOWA

LOCATION.--Lat 40°49'22", long 91°05'52", in NW1/4 NW1/4 sec.33, T.70 N., R.2 W., Des Moines County, at low-head pumping station of Burlington Municipal Water Department, and at mile 1,358.0.
DRAINAGE AREA.--114,000 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: October 1969 to current year.
REMARKS.--Water discharge furnished by District Office, Corps of Engineers, Rock Island, Illinois. Station operated by EPA during period October 1957 to September 1969.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	ORGANIC NITROGEN (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DIS-SOLVED PHOSPHORUS (P) (MG/L)
OCT.												
01...	--	--	--	--	--	--	--	--	--	--	--	--
08...	33000	--	--	170	45	13	--	1.2	.10	2.1	.24	.16
16...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--	--	--
NOV.												
05...	--	--	--	--	--	--	--	--	--	--	--	--
12...	93000	9.0	2.4	144	33	13	.1	.91	.02	2.1	.18	.09
DEC.												
17...	51000	9.3	2.8	172	48	14	.2	.53	.02	4.1	.13	.11
24...	--	--	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--	--	--
JAN.												
07...	--	--	--	--	--	--	--	--	--	--	--	--
15...	38000	--	--	190	56	17	--	.02	.24	3.5	.10	.07
FEB.												
18...	44700	--	--	179	45	16	--	.58	.26	2.1	.19	.11
25...	--	--	--	--	--	--	--	--	--	--	--	--
MAR.												
04...	--	--	--	--	--	--	--	--	--	--	--	--
11...	76000	--	--	131	28	14	--	.69	.73	3.7	.30	.15
18...	--	--	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--	--	--
APR.												
01...	--	--	--	--	--	--	--	--	--	--	--	--
08...	146000	--	--	125	26	10	--	.82	.27	3.3	.48	.09
MAY												
13...	91000	--	--	116	29	8.0	--	.20	.02	.2	.21	.09
20...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--	--	--
JUNE												
03...	--	--	--	--	--	--	--	--	--	--	--	--
10...	84000	6.9	2.6	125	29	10	.3	1.3	.03	1.8	.37	.09
17...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--	--	--
JULY												
01...	--	--	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--	--	--
15...	82000	--	--	148	38	9.0	--	.05	.02	3.2	.24	.09
AUG.												
12...	25000	--	--	154	49	14	--	.41	.02	.4	.14	.08
19...	--	--	--	--	--	--	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--
SEPT.												
02...	--	--	--	--	--	--	--	--	--	--	--	--
09...	36000	--	--	154	41	13	--	.00	.06	.2	.24	.05
16...	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--

05469720 MISSISSIPPI RIVER AT BURLINGTON, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	HARDNESS (CA,MG) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND (MG/L)	COLIFORM (COLONIES PER 100 ML)
OCT.												
01...	--	--	--	--	--	18.0	--	--	--	--	--	--
08...	220	--	--	440	8.2	19.0	23	25	8.5	92	3.9	200
16...	--	--	--	--	--	16.5	--	--	--	--	--	--
23...	--	--	--	--	--	14.5	--	--	--	--	--	--
29...	--	--	--	--	--	15.0	--	--	--	--	--	--
NOV.												
05...	--	--	--	--	--	9.5	--	--	--	--	--	--
12...	180	10	.3	400	7.6	9.5	32	15	10.8	96	4.9	7400
DEC.												
17...	230	8	.3	481	7.4	2.5	10	6.0	--	--	--	--
24...	--	--	--	--	--	3.0	--	--	--	--	--	--
31...	--	--	--	--	--	2.0	--	--	--	--	--	--
JAN.												
07...	--	--	--	--	--	1.5	--	--	--	--	--	--
15...	260	--	--	528	7.9	.0	25	1.0	--	--	--	--
FEB.												
18...	220	--	--	500	7.6	1.0	--	2.0	--	--	5.4	1300
25...	--	--	--	--	--	.5	--	--	--	--	--	--
MAR.												
04...	--	--	--	--	--	1.0	--	--	--	--	--	--
11...	170	--	--	370	7.7	.5	20	20	13.0	92	7.1	5400
18...	--	--	--	--	--	2.0	--	--	--	--	--	--
25...	--	--	--	--	--	3.5	--	--	--	--	--	--
APR.												
01...	--	--	--	--	--	8.0	--	--	--	--	--	--
08...	170	--	--	370	7.7	7.0	15	70	10.6	88	5.6	4800
MAY												
13...	150	--	--	300	8.5	16.0	20	25	11.2	117	5.9	2600
20...	--	--	--	--	--	20.0	--	--	--	--	--	--
27...	--	--	--	--	--	15.5	--	--	--	--	--	--
JUNE												
03...	--	--	--	--	--	20.0	--	--	--	--	--	--
10...	160	8	.2	320	7.9	23.5	20	65	6.6	78	3.6	5600
17...	--	--	--	--	--	25.5	--	--	--	--	--	--
24...	--	--	--	--	--	26.0	--	--	--	--	--	--
JULY												
01...	--	--	--	--	--	26.0	--	--	--	--	--	--
08...	--	--	--	--	--	26.5	--	--	--	--	--	--
15...	190	--	--	395	7.3	26.5	15	60	5.7	71	2.2	14000
AUG.												
12...	200	--	--	430	8.3	26.0	15	10	7.8	96	3.6	1100
19...	--	--	--	--	--	25.0	--	--	--	--	--	--
26...	--	--	--	--	--	26.0	--	--	--	--	--	--
SEPT.												
02...	--	--	--	--	--	24.5	--	--	--	--	--	--
09...	180	--	--	390	8.1	27.0	15	20	5.9	73	3.2	1300
16...	--	--	--	--	--	25.0	--	--	--	--	--	--
23...	--	--	--	--	--	19.0	--	--	--	--	--	--
30...	--	--	--	--	--	20.5	--	--	--	--	--	--

05469720 MISSISSIPPI RIVER AT BURLINGTON, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	SAMPLE SIZE (GALS)	TOTAL CARBON EXTRACTABLES (UG/L)	CARBON CHLOROFORM EXTRACTABLES (UG/L)	CARBON ALCOHOL EXTRACTABLES (UG/L)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT. 08...	--	--	--	--	.00
NOV. 12...	--	--	--	--	.07
DEC. 17...	--	--	--	--	.03
JAN. 15...	--	--	--	--	.10
FEB. 01-07	323	879	91	788	--
18...	--	--	--	--	.07
MAR. 01-04	396	423	81	342	--
11...	--	--	--	--	.18
APR. 08...	--	--	--	--	.10
MAY 13...	--	--	--	--	.06
JUNE 10...	--	--	--	--	.05
JULY 15...	--	--	--	--	.07
AUG. 12...	--	--	--	--	.05
SEPT. 09...	--	--	--	--	.04

DATE	TOTAL NON-FILTRABLE RESIDUE (MG/L)	TOTAL FILTRABLE RESIDUE (MG/L)	TOTAL RESIDUE (MG/L)	SUSPENDED ALPHA (PC/L)	SUSPENDED ALPHA (COUNTING ERROR)	DISSOLVED ALPHA (PC/L)	DISSOLVED ALPHA (COUNTING ERROR)	TOTAL ALPHA (PC/L)
OCT. 08...	74	322	397	1.0	.0	.0	1.0	1.0
DEC. 17...	55	364	419	.0	.0	3.0	1.0	3.0
FEB. 18...	71	416	487	.0	.0	1.0	1.0	1.0
MAR. 11...	71	289	360	1.0	.0	2.0	1.0	3.0

DATE	TOTAL ALPHA (COUNTING ERROR)	SUSPENDED BETA (PC/L)	SUSPENDED BETA (COUNTING ERROR)	DISSOLVED BETA (PC/L)	DISSOLVED BETA (COUNTING ERROR)	TOTAL BETA (PC/L)	TOTAL BETA (COUNTING ERROR)
OCT. 08...	1.0	3.0	1.0	6.0	1.0	9.0	1.0
DEC. 17...	1.0	.0	1.0	.0	.0	.0	1.0
FEB. 18...	1.0	2.0	1.0	8.0	2.0	10	2.0
MAR. 11...	1.0	4.0	3.0	12	7.0	16	7.0

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IOWA

LOCATION.--Lat 41°40'50", long 93°40'07", near center of sec.5, T.79 N., R.24 W., Polk County, near center of span on upstream side of bridge on county highway F42, 30 ft upstream from gaging station, 2.0 miles west of Saylorville, 2.1 miles downstream from Rock Creek, 2.4 miles upstream from Beaver Creek, and at mile 211.6.
DRAINAGE AREA.--5,841 sq mi.
PERIOD OF RECORD.--Specific conductance: December 1967 to current year.
Water temperatures: October 1961 to current year.
Sediment records: October 1961 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 1,000 micromhos Jan. 20; minimum daily, 90 micromhos Feb. 19.
Water temperatures: Maximum, 36.0°C June 29; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 3,570 mg/l Mar. 9; minimum daily, 20 mg/l Feb. 11.
Sediment loads: Maximum daily, 66,000 tons Mar. 18; minimum daily, 9.5 tons Sept. 22.

Period of record: Specific conductance: Maximum daily, 1,350 micromhos Jan. 19-21, 1968; minimum daily, 90 micromhos Feb. 19, 1971.
Water temperatures: Maximum, 36.0°C June 29, 1971; freezing point on many days during winter months each year.
Sediment concentrations: Maximum daily, 5,400 mg/l May 14, 1970; minimum daily, 1 mg/l Jan. 8, 1965.
Sediment loads: Maximum daily, 148,000 tons June 12, 1966; minimum daily, 1 ton Jan. 8, 1965, Feb. 8-12, 23, 1967.
REMARKS.--Flow affected by ice Nov. 9-14, 22-30, Dec. 5 to Mar. 17.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	760	---	720	---	---	330	---	---	550	670	---	760
2	750	710	680	---	---	420	---	---	550	---	560	780
3	760	770	720	---	---	450	---	520	550	---	560	780
4	---	740	720	---	---	---	---	550	---	---	560	---
5	770	---	---	---	---	---	---	520	---	---	580	---
6	770	750	---	---	---	---	460	500	---	640	580	---
7	760	730	630	---	---	---	510	480	580	480	---	780
8	---	750	750	---	---	570	480	---	600	530	---	---
9	650	730	---	---	---	570	---	---	600	510	---	---
10	680	720	---	---	---	540	570	530	430	540	---	---
11	720	700	---	---	980	520	---	530	---	---	---	---
12	720	700	---	---	930	510	---	530	---	580	---	---
13	720	700	---	---	840	500	---	530	---	560	---	780
14	700	700	---	---	---	430	630	530	620	570	---	780
15	700	660	---	---	840	360	600	---	620	710	---	---
16	740	690	---	---	840	320	580	---	680	670	750	---
17	750	700	---	---	780	310	---	450	---	---	645	---
18	---	700	---	---	---	310	---	500	---	---	760	---
19	700	---	---	---	90	350	590	520	---	620	760	---
20	720	720	---	1000	290	---	600	510	---	680	760	780
21	720	740	---	---	---	350	600	---	690	680	---	790
22	720	---	---	---	---	350	600	550	720	---	---	---
23	730	750	---	---	300	---	510	560	740	---	760	---
24	750	---	---	---	310	310	---	---	740	---	760	---
25	740	---	---	---	360	360	---	600	730	---	760	---
26	740	---	---	---	280	470	540	650	---	---	760	---
27	710	---	---	---	---	---	500	650	---	---	760	810
28	710	---	---	---	---	---	480	---	---	---	---	---
29	710	---	---	---	---	500	---	---	720	620	---	---
30	680	720	---	---	---	360	---	---	680	---	760	800
31	700	---	---	---	---	360	---	---	---	---	760	---

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23.0	---	9.0	---	---	2.0	---	---	22.0	34.0	---	30.0
2	20.0	10.0	5.5	---	---	1.0	---	---	26.0	---	26.0	30.0
3	14.5	9.0	4.5	---	---	1.0	---	15.5	30.0	---	22.0	32.0
4	---	8.5	3.5	---	---	---	---	26.5	---	---	20.0	---
5	22.0	---	---	---	---	---	---	18.0	---	---	24.0	---
6	18.5	10.0	---	---	---	---	8.5	18.0	---	28.0	28.0	---
7	20.0	11.0	3.0	---	---	---	14.5	16.5	27.0	23.5	---	32.0
8	---	13.5	1.5	---	---	0.5	11.0	20.0	25.0	25.0	---	---
9	11.0	9.0	---	---	---	1.0	---	---	26.0	28.0	---	---
10	11.0	10.0	---	---	---	4.5	13.5	---	28.0	25.0	---	---
11	13.5	10.0	---	---	0	2.0	---	16.5	---	---	---	---
12	13.5	10.0	---	---	0	3.5	---	19.0	---	28.0	---	---
13	13.5	8.5	---	0.5	0	4.5	---	20.0	---	24.0	---	20.0
14	13.5	5.5	---	---	---	4.5	15.5	24.5	25.0	28.0	---	25.0
15	13.5	5.0	---	---	0	2.0	16.5	---	28.0	28.0	---	---
16	12.0	6.5	---	---	---	2.0	14.5	---	30.0	---	28.0	---
17	13.5	6.5	---	---	4.5	5.5	---	23.5	---	---	25.5	---
18	---	8.0	---	---	---	3.5	---	22.0	---	---	30.0	---
19	13.5	---	---	---	3.5	3.5	21.0	19.0	---	25.0	28.0	---
20	13.5	5.5	---	0.5	---	---	22.0	22.0	---	30.0	30.0	26.0
21	16.5	6.5	---	---	---	0.5	18.5	---	28.0	28.0	---	28.0
22	14.5	---	---	---	---	0.5	19.0	18.0	31.0	---	---	---
23	15.5	1.0	---	---	---	---	20.0	20.0	32.0	---	32.0	---
24	15.5	---	---	---	---	1.5	---	---	33.0	---	32.0	---
25	19.0	---	---	---	3.0	2.0	---	14.0	32.0	---	30.0	---
26	20.0	---	---	---	4.0	2.0	23.5	12.0	---	---	29.0	---
27	14.5	---	---	---	---	---	16.5	22.0	---	---	26.0	28.0
28	13.5	---	---	---	---	---	14.5	---	---	---	---	---
29	10.0	---	---	---	---	---	---	---	36.0	24.0	---	---
30	9.5	3.5	---	---	---	---	---	---	32.0	---	28.0	30.0
31	10.0	---	---	---	---	11.0	---	---	---	---	28.0	---

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DEC., 1970					
04...	1105	760	--	--	5.0
08...	0955	720	890	--	1.0
JAN., 1971					
13...	1530	434	--	--	.5
20...	0900	332	1000	--	.0
20...	0945	365	--	--	.5
MAR.					
20...	1030	12000	--	--	3.0
APR.					
14...	1630	6170	630	--	15.5
MAY					
25...	1030	2500	--	--	13.0
JUNE					
15...	1505	5540	--	--	28.5
JULY					
07...	0950	9260	--	--	22.0
AUG.					
17...	1010	369	530	--	23.0

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	286	56	43	737	76	151	1640	218	965
2	277	45	34	725	47	92	1530	230	950
3	252	30	20	703	25	47	1460	128	505
4	235	26	16	731	48	95	1380	88	328
5	235	38	24	749	54	109	1280	93	321
6	227	45	28	755	51	104	1000	81	219
7	219	47	28	755	53	108	600	62	100
8	239	72	46	797	52	112	750	80	162
9	539	323	512	850	78	179	870	140	329
10	767	297	615	900	90	219	900	115	279
11	749	209	423	950	84	215	800	57	123
12	709	190	364	1000	74	200	750	52	105
13	797	197	424	1150	77	239	800	54	117
14	904	175	427	1400	128	484	850	51	117
15	891	132	318	1520	125	513	900	60	146
16	845	108	246	1620	123	538	820	56	124
17	797	107	230	1580	104	444	800	57	123
18	791	109	233	1570	112	475	850	41	94
19	743	110	221	1590	118	507	820	32	71
20	698	114	215	1640	117	518	800	32	69
21	681	107	197	1770	150	717	720	30	58
22	681	110	202	1650	180	802	690	29	54
23	676	109	199	1450	330	1290	700	25	49
24	692	96	179	1250	1140	3850	720	38	74
25	703	89	169	1050	660	1870	700	38	72
26	659	110	196	950	465	1190	680	44	81
27	643	114	198	1200	385	1250	660	42	75
28	648	128	224	1350	330	1200	640	45	78
29	648	99	173	1500	300	1220	620	48	80
30	731	65	128	1600	280	1210	600	48	78
31	767	79	164	--	--	--	580	47	74
TOTAL	18729	--	6496	35492	--	19948	26910	--	6020

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	560	45	68	330	50	45	4300	230	2670
2	540	44	64	320	51	44	4100	110	1220
3	520	42	59	310	50	42	3900	1770	18600
4	450	41	50	300	50	41	3700	1390	13900
5	400	39	42	290	49	38	3600	950	9230
6	430	39	45	280	49	37	3500	850	8030
7	440	38	45	270	60	44	3300	850	7570
8	450	38	46	260	83	58	3200	1260	10900
9	460	37	46	250	62	42	3100	3570	29900
10	460	35	43	220	53	31	3100	950	7950
11	450	34	41	230	20	12	3200	430	3720
12	440	32	38	230	27	17	4400	560	6650
13	440	30	36	240	37	24	5500	700	10400
14	430	101	117	240	42	27	8000	760	16400
15	420	95	108	240	23	15	10500	920	26100
16	410	103	114	240	29	19	12500	670	22600
17	390	102	107	280	30	23	13000	1020	35800
18	380	100	103	700	290	548	13800	1770	66000
19	370	100	100	3500	158	1490	13500	440	16000
20	360	98	95	6000	215	3480	13100	550	19500
21	360	93	90	7500	217	4390	12400	1060	35500
22	370	90	90	8100	189	4130	12300	1040	34500
23	370	88	88	7100	161	3090	12400	1150	38500
24	380	84	86	6100	132	2170	11500	800	24800
25	390	81	85	5700	2400	36900	9700	540	14100
26	390	77	81	5200	720	10100	8920	660	15900
27	380	70	72	4800	270	3500	8320	460	10300
28	370	65	65	4600	250	3110	8010	250	5410
29	360	58	56	--	--	--	9840	690	18300
30	350	50	47	--	--	--	12000	1040	33700
31	340	59	54	--	--	--	13200	800	28500
TOTAL	12860	--	2181	63830	--	73467	251890	--	592650

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	13600	840	30800	2840	570	4370	2220	195	1170
2	13600	980	36000	2770	550	4110	2140	445	2570
3	13300	980	35200	2690	520	3780	2150	250	1450
4	12700	960	32900	2600	215	1510	2580	485	3380
5	12100	920	30100	2540	135	926	2840	675	5180
6	11100	850	25500	2460	412	2740	2600	225	1580
7	10200	720	19800	2490	485	3260	3170	300	2570
8	9220	560	13900	2410	425	2770	3510	380	3600
9	8190	470	10400	2270	282	1730	6120	285	4710
10	7580	400	8190	2170	150	879	8320	520	11700
11	7000	360	6800	2040	174	958	8800	670	15900
12	6620	345	6170	1920	137	710	8020	615	13300
13	6300	320	5440	1920	200	1040	6960	555	10400
14	5990	300	4850	1810	85	415	6070	500	8190
15	5510	420	6250	1730	99	462	5550	445	6670
16	5180	390	5450	1640	137	607	5110	415	5730
17	4960	340	4550	1590	170	730	4530	390	4770
18	4760	280	3600	2200	639	4370	4080	360	3970
19	4510	220	2680	2900	380	2980	3680	335	3330
20	4260	200	2300	2440	580	3820	3380	305	2780
21	4040	180	1960	2240	395	2390	3200	265	2290
22	3840	180	1870	2180	325	1910	3130	215	1820
23	3660	215	2120	2250	310	1880	2960	205	1640
24	3560	230	2210	2380	280	1800	2860	170	1310
25	3350	240	2170	2460	205	1360	2670	170	1230
26	3240	245	2140	2600	275	1930	2490	195	1310
27	3210	1440	12500	2860	195	1510	2280	210	1290
28	3100	890	7450	2710	140	1020	2080	205	1150
29	2980	640	5150	2570	135	937	1920	200	1040
30	2900	585	4580	2430	150	984	2100	460	2610
31	--	--	--	2280	195	1200	--	--	--
TOTAL	200560	--	333030	72390	--	59088	117520	--	128640

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2480	470	3150	1160	145	454	233	48	30
2	4060	915	10000	1040	380	1070	268	52	38
3	3920	620	6560	968	180	470	246	38	25
4	3460	500	4670	942	88	224	250	26	18
5	3280	415	3680	829	101	226	248	35	23
6	5600	450	6800	775	69	144	246	38	25
7	9020	850	20700	728	63	124	230	42	26
8	9360	510	12900	688	61	113	229	43	27
9	7700	380	7900	629	92	156	216	42	24
10	6150	505	8390	547	121	179	222	41	25
11	5120	545	7530	568	93	143	212	39	22
12	4990	420	5660	565	93	142	204	38	21
13	4590	430	5330	537	92	133	191	35	18
14	3920	385	4070	496	90	121	175	36	17
15	3410	260	2390	456	89	110	173	37	17
16	3010	240	1950	407	86	95	185	36	18
17	2730	265	1950	385	61	63	180	35	17
18	2450	275	1820	381	47	48	163	33	15
19	2190	300	1770	386	44	46	167	32	14
20	1990	275	1480	375	47	48	176	28	13
21	1810	250	1220	350	47	44	173	25	12
22	1690	245	1120	357	47	45	153	23	9.5
23	1570	235	996	338	45	41	178	41	20
24	1550	230	963	308	52	43	185	51	25
25	1830	430	2120	311	51	43	177	42	20
26	1930	525	2740	317	44	38	199	44	24
27	1680	385	1750	291	44	35	200	48	26
28	1480	235	939	276	45	34	193	38	20
29	1440	270	1050	263	45	32	177	29	14
30	1340	165	597	255	42	29	213	31	18
31	1250	155	523	235	40	25	--	--	--
TOTAL	107000	--	132718	16163	--	4518	6062	--	621.5

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 929406
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 1359377.5

05481650 DES MOINES RIVER NEAR SAYLORVILLE, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM
FEB.											
25...	1615	3.0	--	5700	4770	73400	29	33	40	58	81
MAY											
25...	1045	13.0	4	2500	--	--	--	--	--	--	--
JULY											
07...	1025	22.0	3	9270	--	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	METHOD OF ANALYSIS
FEB.												
25...	98	100	--	--	--	--	--	--	--	--	--	SPWC
MAY												
25...	--	--	5	9	31	65	87	94	99	--	--	SV
JULY												
07...	--	--	--	1	7	42	79	86	91	98	100	SV

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

05487980 WHITE BREAST CREEK NEAR DALLAS, IOWA

LOCATION.--Lat 41°14'41", long 93°16'08", in NW1/4 NW1/4 sec.3, T.74 N., R.21 W., Marion County, 15 ft upstream from gaging station on bridge on county highway, 0.5 mile downstream from Kirk Branch, and 1.7 miles northwest of Dallas.
DRAINAGE AREA.--342 sq mi.
PERIOD OF RECORD.--Chemical analysis: October 1968 to current year.
Water temperatures.--October 1967 to current year.
Sediment records.--October 1967 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 680 micromhos Jan. 18; minimum daily, 140 micromhos Feb. 19.
Water temperatures: Maximum, 26.5°C June 29, July 12; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 9,590 mg/l May 24; minimum daily, 8 mg/l July 3.
Sediment loads: Maximum daily, 21,000 tons Oct. 9; minimum daily, 0.03 ton Sept. 1, 2.

Period of record: Specific conductance: Maximum daily, 850 micromhos Jan. 17, 1970; minimum daily, 140 micromhos Feb. 19, 1971.
Water temperatures: Maximum, 28.0°C July 16, 1969; freezing point on many days during winter months each year.
Sediment concentrations: Maximum daily, 15,300 mg/l Apr. 5, 1969; minimum daily, 4 mg/l Jan. 5, 1970.
Sediment loads: Maximum daily, 103,000 tons Apr. 27, 1969; minimum daily, 0.02 ton Dec. 15, 16, 1968.
REMARKS.--Samples for chemical analysis are collected periodically. Flow affected by ice Nov. 23, 24, Dec. 8-11, 13, 14, Dec. 19 to Feb. 25.
COOPERATION.--Laboratory analysis of chemical constituents furnished by State Hygienic Lab., Des Moines, Iowa.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	500	420	490	500	540	190	470	460	510	470	410	460
2	480	480	490	460	520	180	460	460	480	460	410	460
3	500	540	500	510	520	355	470	460	480	460	290	420
4	510	470	500	500	520	390	470	500	480	440	290	310
5	510	470	500	530	510	370	470	500	480	460	350	---
6	480	470	440	490	510	370	470	500	480	435	370	---
7	480	490	640	500	510	390	470	510	480	450	390	300
8	480	490	430	480	610	440	470	540	460	460	390	300
9	210	480	---	510	610	460	470	530	460	---	290	300
10	230	390	---	510	610	460	470	550	480	---	400	375
11	220	410	---	490	610	310	480	540	480	---	400	375
12	220	400	---	490	580	290	480	510	480	390	410	375
13	440	400	---	490	580	290	440	510	480	390	410	380
14	440	400	---	520	620	290	460	500	480	390	420	400
15	450	480	---	480	620	280	460	500	290	390	420	410
16	500	480	---	510	600	280	460	500	310	450	420	410
17	500	490	---	510	600	280	460	500	310	460	---	410
18	480	490	---	680	320	280	460	500	330	460	---	410
19	480	490	---	460	140	370	460	390	420	470	---	410
20	470	470	---	490	250	450	460	390	430	480	---	410
21	480	500	---	480	220	450	460	370	430	460	---	410
22	500	500	---	460	180	460	480	410	460	450	---	410
23	350	480	---	480	170	430	480	470	460	480	---	410
24	340	490	---	430	190	460	480	210	460	450	380	410
25	340	510	---	460	420	460	490	290	470	430	410	410
26	350	510	---	510	360	460	490	535	460	460	450	410
27	380	500	500	480	210	480	510	490	410	410	450	400
28	380	500	520	480	170	470	510	510	460	410	450	410
29	400	500	450	520	---	460	510	480	460	400	450	410
30	450	500	450	520	---	480	510	490	470	400	450	410
31	480	---	---	540	---	470	---	520	---	410	460	---
MONTH	420	473	---	499	439	381	474	472	445	438	---	393
YEAR	442											

05487980 WHITE BREAST CREEK NEAR DALLAS, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	8.0	3.0	0	0	0	0	11.0	19.5	24.5	16.5	20.0
2	14.0	6.0	3.0	0	0	0	0	10.0	19.0	25.5	17.0	21.5
3	11.5	5.5	3.5	0	0	0	0.5	8.5	19.5	25.5	18.5	22.0
4	13.0	6.5	3.0	0	0	0	0	10.0	21.5	24.0	18.5	23.0
5	13.5	8.0	0.5	0	0	0	0	12.0	23.0	24.5	18.0	---
6	14.0	8.5	0	0	0	0	1.0	11.0	23.5	17.0	19.0	---
7	15.5	6.5	0	0	0	0	1.5	10.0	22.0	22.0	19.0	22.0
8	16.5	7.0	0	0	0	0	3.5	10.0	21.0	22.0	20.0	22.0
9	13.0	8.0	---	0	0	0	4.0	12.0	21.0	---	20.5	23.0
10	7.0	8.0	---	0	0	0	4.0	13.5	22.0	---	19.5	22.0
11	6.5	7.0	---	0	0	0	4.5	13.0	23.5	---	20.5	18.0
12	8.0	7.0	---	0	0	0	6.5	10.0	23.5	26.5	19.5	18.0
13	11.0	7.0	---	0	0	1.0	1.5	13.0	24.0	25.5	20.0	16.5
14	8.5	5.5	---	0	0	0	4.0	14.5	23.5	24.0	20.0	16.5
15	7.0	1.0	---	0	0	1.5	6.5	15.5	20.5	23.5	20.5	15.5
16	6.0	0	---	0	0	0.5	10.0	17.0	22.0	24.5	24.0	13.5
17	7.0	1.5	---	0	0	0	13.0	19.0	23.5	24.5	---	12.0
18	8.5	1.5	---	0	0	0	15.5	18.5	24.0	25.5	---	13.5
19	9.0	3.5	---	0	0	0	15.5	16.5	23.5	22.0	---	11.0
20	10.0	1.5	---	0	0	0	14.5	15.5	24.0	23.5	---	10.0
21	10.0	2.0	---	0	0	0	13.0	16.5	21.0	23.5	---	10.5
22	13.0	1.0	---	0	0	0	11.0	16.0	23.0	23.5	---	11.0
23	13.5	0	---	0	0	0	13.0	15.5	23.5	24.0	---	10.0
24	14.0	0	---	0	0	0	12.0	15.5	24.0	22.0	24.5	10.0
25	13.5	0	---	0	0	0	10.5	15.5	25.0	22.0	24.5	11.0
26	13.5	0	---	0	0	0	9.5	15.5	25.0	21.0	22.0	12.0
27	13.0	0	0	0	0	0	10.0	15.0	25.5	19.5	21.0	13.5
28	13.5	0	0	0	0	1.5	9.0	15.5	26.0	18.0	20.5	18.0
29	9.0	0	0	0	---	0.5	8.5	14.5	26.5	15.5	21.0	16.5
30	---	0	0	0	---	0.5	9.0	16.5	25.5	16.5	19.0	20.0
31	7.0	---	---	0	---	3.5	---	18.5	---	16.0	19.5	---
MONTH	11.0	3.5	---	0	0	0.5	7.0	14.0	23.0	22.5	---	16.0
YEAR	10.0											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	IRON (FE) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)
AUG. 10...	1.4	7.9	100	320	54	9.7	15	7.4	198	0	162	49

DATE	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS IRESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)
AUG. 10...	7.0	.3	.4	265	.36	1.00	176	15	.5	410	7.7	25.5

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	TEMP-ERATURE (DEG C)
NOV., 1970				
03...	1225	72	--	6.0
DEC.				
07...	1121	23	640	.5
JAN., 1971				
18...	1340	31	680	.0
27...	1245	37	--	1.0
MAR.				
03...	1500	203	--	.5
APR.				
12...	1545	36	500	9.0
MAY				
26...	1355	80	590	--
27...	1200	42	--	10.5
JULY				
06...	1155	6.6	--	26.0
AUG.				
16...	1140	1.2	420	24.0

05487980 WHITE BREAST CREEK NEAR DALLAS, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	42	74	8.4	91	60	15	80	26	5.6
2	35	100	9.5	87	57	13	65	34	6.0
3	25	91	6.1	72	24	4.7	59	27	4.3
4	20	100	5.4	66	17	3.0	50	28	3.8
5	19	73	3.7	61	31	5.1	45	26	3.2
6	19	55	2.8	60	20	3.2	32	23	2.0
7	20	57	3.1	56	44	6.7	34	37	3.4
8	326	664	2230	52	32	4.5	36	59	5.7
9	4640	1710	21000	196	675	535	40	55	5.9
10	2190	1710	9020	394	716	791	45	84	10
11	444	2720	3260	239	310	200	420	82	93
12	233	2080	1360	139	295	111	296	53	42
13	169	280	128	109	202	59	160	43	19
14	133	247	89	91	203	50	140	52	20
15	110	217	64	78	55	12	202	56	31
16	95	63	16	75	46	9.3	264	60	43
17	88	34	8.1	76	46	9.4	372	69	69
18	83	80	18	74	49	9.8	520	66	93
19	75	66	13	75	100	20	300	39	32
20	69	56	10	183	1950	963	150	40	16
21	66	28	5.0	120	1450	470	190	56	29
22	223	723	654	113	100	31	170	49	22
23	344	775	814	60	9	1.5	140	50	19
24	484	530	693	54	75	11	120	60	19
25	255	512	353	57	105	16	100	57	15
26	170	520	239	71	45	8.6	80	54	12
27	373	997	1030	78	36	7.6	70	63	12
28	273	960	708	74	36	7.2	60	69	11
29	169	695	317	77	65	14	50	64	8.6
30	127	200	69	76	34	7.0	45	38	4.6
31	106	260	74	--	--	--	48	37	4.8
TOTAL	11425	--	42211.1	3054	--	3398.6	4383	--	864.9

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	55	53	7.9	36	35	3.4	622	410	689
2	60	75	12	37	27	2.7	314	440	373
3	55	55	8.2	38	34	3.5	222	310	186
4	40	41	4.4	36	35	3.4	219	220	130
5	35	74	7.0	34	55	5.0	264	215	153
6	30	87	7.0	31	28	2.3	201	140	76
7	25	71	4.8	28	18	1.4	166	250	112
8	27	87	6.3	25	15	1.0	143	215	83
9	30	56	4.5	26	29	2.0	150	150	61
10	35	27	2.6	30	57	4.6	153	180	74
11	34	30	2.8	35	38	3.6	378	1060	1100
12	33	49	4.4	30	33	2.7	720	1020	1980
13	33	70	6.2	28	30	2.3	798	1030	2220
14	32	90	7.8	35	37	3.5	972	1290	3390
15	32	88	7.6	45	30	3.6	665	1130	2030
16	31	62	5.2	60	19	3.1	328	1050	930
17	31	62	5.2	80	50	11	213	910	523
18	31	54	4.5	2000	870	4700	198	1400	748
19	31	65	5.4	4200	700	7940	201	1170	635
20	35	66	6.2	3400	740	6790	162	290	127
21	45	58	7.0	1300	830	2910	150	280	113
22	50	52	7.0	600	760	1230	130	245	86
23	52	82	12	300	770	624	103	83	23
24	54	55	8.0	240	700	454	89	43	10
25	50	40	5.4	250	670	452	95	65	17
26	40	34	3.7	2280	1010	7010	106	140	40
27	37	56	5.6	2200	480	2850	106	228	65
28	36	38	3.7	1410	380	1450	91	99	24
29	35	64	6.0	--	--	--	80	100	22
30	35	38	3.6	--	--	--	72	102	20
31	34	32	2.9	--	--	--	70	116	22
TOTAL	1183	--	184.9	18814	--	36469.1	8181	--	16062

05487980 WHITE BREAST CREEK NEAR DALLAS, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	65	116	20	44	155	18	17	182	8.4
2	57	119	18	42	132	15	15	75	3.0
3	49	88	12	37	123	12	13	49	1.7
4	45	100	12	33	38	3.4	11	136	4.0
5	42	72	8.2	35	37	3.5	12	156	5.1
6	41	47	5.2	38	140	14	15	212	8.6
7	40	44	4.8	61	175	29	14	160	6.0
8	39	34	3.6	102	235	65	9.7	90	2.4
9	37	66	6.6	88	255	61	8.0	86	1.9
10	34	65	6.0	86	235	55	7.4	155	3.1
11	33	42	3.7	53	200	29	7.0	135	2.6
12	36	49	4.8	39	115	12	6.3	40	.68
13	34	50	4.6	33	102	9.1	6.0	20	.32
14	29	58	4.5	29	103	8.1	7.7	52	1.1
15	29	95	7.4	25	60	4.1	226	2910	2250
16	31	64	7.0	21	95	5.4	48	4140	583
17	35	39	3.7	19	55	2.8	26	1690	119
18	34	32	2.9	31	390	82	15	1730	70
19	33	62	5.5	368	5550	5510	11	300	8.9
20	31	143	12	133	6600	2370	8.4	188	4.3
21	36	131	13	59	5600	892	7.0	171	3.2
22	39	123	13	40	1050	113	6.3	83	1.4
23	55	80	12	36	1180	115	5.3	95	1.4
24	36	76	7.4	128	9590	3760	4.7	99	1.3
25	28	93	7.0	54	6600	1030	3.8	87	.89
26	25	112	7.6	76	1100	226	3.3	91	.81
27	83	376	93	44	1220	145	2.9	263	2.1
28	119	442	142	30	870	70	2.5	118	.80
29	106	420	120	24	920	60	2.5	65	.44
30	57	370	57	21	740	42	4.7	110	1.4
31	--	--	--	19	200	10	--	--	--
TOTAL	1358	--	624.5	1848	--	14771.4	526.5	--	3997.84

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4.7	78	.99	1.4	130	.49	.77	14	.03
2	4.7	15	.19	1.4	235	.89	.83	14	.03
3	4.1	8	.09	26	1160	97	.93	165	.41
4	4.1	138	1.5	3.0	670	5.4	1.2	320	1.0
5	6.3	122	2.1	1.9	340	1.7	39	966	151
6	6.3	98	1.7	3.0	125	1.0	21	684	48
7	4.4	116	1.4	1.9	25	.13	4.1	290	3.2
8	3.4	120	1.1	1.6	70	.30	1.9	280	1.4
9	4.4	174	2.1	1.4	155	.59	1.2	230	.75
10	12	272	8.8	1.4	160	.60	1.1	185	.55
11	18	543	26	1.2	162	.52	.93	158	.40
12	8.2	362	8.0	1.2	190	.62	.93	63	.16
13	5.6	87	1.3	1.2	190	.62	.85	32	.07
14	3.4	80	.73	1.2	158	.51	.85	60	.14
15	3.2	127	1.1	1.1	118	.35	.85	65	.15
16	2.5	122	.82	1.1	111	.33	.93	87	.22
17	2.0	117	.63	1.0	107	.29	.85	82	.19
18	1.3	82	.40	.85	102	.23	1.0	84	.23
19	1.6	131	.57	.83	95	.21	1.4	97	.37
20	1.4	142	.54	.85	85	.20	1.3	34	.12
21	1.4	183	.69	.93	77	.19	1.1	38	.11
22	1.4	140	.53	1.0	83	.22	1.0	75	.20
23	1.9	280	1.4	1.1	102	.30	.93	75	.19
24	22	340	24	1.1	127	.38	1.0	89	.24
25	13	247	8.7	1.1	168	.50	1.2	93	.30
26	6.1	210	3.5	1.1	205	.61	1.2	85	.28
27	3.5	112	1.1	1.4	165	.62	1.1	168	.50
28	2.5	65	.44	1.0	178	.48	1.1	63	.19
29	1.9	78	.40	.85	186	.43	1.0	23	.06
30	1.6	87	.38	.77	158	.33	1.0	63	.17
31	1.6	96	.42	.77	28	.06	--	--	--
TOTAL	159.0	--	101.62	64.65	--	116.10	92.55	--	210.66

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 51088.70
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 117912.72

05487980 WHITE BREAST CREEK NEAR DALLAS, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM
OCT.									
09...	0800	13.0	--	5610	1220	18500	48	51	58
MAR.									
03...	1530	.5	--	207	--	--	--	--	--
12...	0800	.0	--	759	1340	2750	45	52	62
14...	0900	.0	--	990	1760	4700	38	45	56
MAY									
19...	0800	16.5	--	600	6220	10100	53	66	78
24...	0800	15.5	--	240	11000	7130	53	65	77
26...	0900	12.0	3	89	361	87	53	59	68
26...	0910	12.0	3	89	381	92	53	72	80
JUNE									
15...	0800	20.5	--	432	5720	6670	53	66	80
AUG.									
03...	0800	18.5	--	60	1430	232	62	81	89

DATE	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM
OCT.									
09...	74	84	98	100	--	--	--	--	--
MAR.									
03...	--	--	--	--	--	--	--	--	--
12...	78	94	99	100	--	--	--	--	--
14...	86	97	98	100	--	--	--	--	--
MAY									
19...	90	97	100	--	--	--	--	--	--
24...	91	97	100	--	--	--	--	--	--
26...	73	85	99	100	3	4	18	71	93
26...	82	85	98	100	--	--	--	--	--
JUNE									
15...	90	98	100	--	--	--	--	--	--
AUG.									
03...	92	95	100	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN .062 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	METHOD OF ANALYSIS
OCT.										
09...	--	--	--	--	--	--	--	--	--	SPWC
MAR.										
03...	3	7	17	50	74	83	87	92	100	S
12...	--	--	--	--	--	--	--	--	--	SPWC
14...	--	--	--	--	--	--	--	--	--	SPWC
MAY										
19...	--	--	--	--	--	--	--	--	--	SPWC
24...	--	--	--	--	--	--	--	--	--	SPWC
26...	--	--	--	--	--	95	98	100	--	SV
26...	--	--	--	--	--	--	--	--	--	SPWC
JUNE										
15...	--	--	--	--	--	--	--	--	--	SPWC
AUG.										
03...	--	--	--	--	--	--	--	--	--	SPWC

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

06485950 BIG SIOUX RIVER AT SIOUX CITY, IOWA

LOCATION.--Lat 42°31'28", long 96°28'47", in NE1/4 SW1/4 sec.14, T.89 N., R.48 W., Woodbury County, at bridge on old U.S. Highway 77, 4.7 miles upstream from mouth, 5.2 miles northwest of city auditorium in Sioux City, and 11.7 miles downstream from Broken Kettle Creek.
DRAINAGE AREA.--9,410 sq mi, approximately, of which about 1,970 sq mi are probably noncontributing.
PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.
REMARKS.--Water discharge measured at site 11.6 miles upstream. No significant inflow between measuring and sampling sites.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)
DEC.												
09...	200	290	120	50	40	230	38	.4	.24	3.0	.21	130
MAR.												
10...	1140	330	58	17	14	78	18	.4	1.4	1.6	.17	--
APR.												
26...	--	--	--	--	--	--	--	--	--	--	--	480
JUNE												
10...	6160	77	53	13	6.6	54	6.0	.4	.15	2.2	.16	190
SEPT.												
08...	173	440	91	42	48	220	50	.5	.02	.1	.25	140

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	FECAL COLI-FORM (COL. PER 100 ML)
DEC.												
09...	726	.99	392	15	.8	950	--	.5	15.4	110	6.1	180
MAR.												
10...	306	.42	942	12	.4	520	7.3	.5	12.0	86	5.4	--
JUNE												
10...	246	.33	4090	7	.2	340	7.1	19.5	4.4	49	5.0	70000
SEPT.												
08...	616	.84	288	21	1.0	960	7.8	21.5	4.6	54	6.2	64

DATE	STREP-TOCOCCI (COL-ONIES PER 100 ML)	CYANIDE (CN) (MG/L)	ALDRIN (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-AZINON (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)
DEC.											
09...	60	.00	--	--	--	--	--	--	--	--	--
MAR.											
10...	500	.02	--	--	--	--	--	--	--	--	--
JUNE											
10...	62000	--	--	--	--	--	--	--	--	--	--
SEPT.											
08...	53	.00	--	--	--	--	--	--	--	--	--

ANALYSES OF ADDITIONAL SAMPLES

DEC.											
09...	--	--	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR.											
10...	--	--	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUNE											
10...	--	--	.02	.00	.00	.00	.02	.00	.05	.00	.00
SEPT											
08	--	--	.00	.00	.00	.00	.00	--	.01	.00	.00

06485950 BIG SIOUX RIVER AT SIOUX CITY, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALATHION (UG/L)	PARATHION (UG/L)	METHYL PARATHION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYLLIUM (BE) (UG/L)	DIS-SOLVED CADMIUM (CD) (UG/L)	DIS-SOLVED CHROMIUM (CR) (UG/L)
DEC. 09...	--	--	--	--	--	--	--	--	6	10	--	0
MAR. 10...	--	--	--	--	--	--	--	--	6	30	--	0
APR. 26...	--	--	--	--	--	--	--	--	--	--	12	--
JUNE 10...	--	--	--	--	--	--	--	--	0	10	1	0
SEPT. 08...	--	--	--	--	--	--	--	--	4	0	0	0
ANALYSES OF ADDITIONAL SAMPLES												
DEC. 09...	.00	.00	.00	.00	.00	.00	.00	.00	--	--	--	--
MAR. 10...	.00	.01	.00	.00	.00	.00	.00	.00	--	--	--	--
JUNE 10...	.00	.00	.00	.00	.00	.75	.01	.00	--	--	--	--
SEPT 08	.00	.00	--	--	--	.00	.00	.00	--	--	--	--

DATE	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYBDENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELENIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DEC. 09...	22	--	3.6	0	--	0	2	140
MAR. 10...	21	--	.9	17	--	6	3	190
APR. 26...	--	19	--	--	54	--	--	--
JUNE 10...	10	1	--	5	5	32	0	20
JULY 15...	--	--	--	--	--	15	--	--
SEPT. 08...	6	3	.8	2	4	6	0	20

DATE	FLOATING ALGAE MATS (SEVERITY)	FLOATING DEBRIS (SEVERITY)	DETERGENT SUDS (SEVERITY)	DEAD FISH (SEVERITY)	FLOATING GARBAGE (SEVERITY)	GAS BUBBLES (SEVERITY)	FLOATING OR SOLID ICE COVER (SEVERITY)	ATMOSPHERIC ODOR (SEVERITY)	OIL-GREASE (SEVERITY)	FRESH FLOATING SEWAGE SOLIDS (SEVERITY)	FLOATING SLUDGE (SEVERITY)
06485950 - BIG SIOUX R. AT SIOUX CITY, IOWA (LAT 42 31 28 LONG 096 28 47)											
DEC., 1970 09...	0	0	0	0	0	0	4	0	0	0	0
MAR., 1971 10...	0	0	0	0	0	0	2	0	0	0	0
JUNE 10...	0	0	0	0	0	0	0	0	0	0	0
SEP. 08...	1	0	0	0	0	0	0	0	0	0	0

Coding for severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme

06600500 FLOYD RIVER AT JAMES, IOWA

LOCATION.--Lat 42°34'36", long 96°18'43", in SE1/4 SE1/4 sec.30, T.90 N., R.46 W., Plymouth County, on upstream side of bridge on county highway C70, 30 ft above gaging station, 0.2 mile east of James, 15.1 miles downstream from West Branch Floyd River, and at mile 9.0.
DRAINAGE AREA.--882 sq mi.
PERIOD OF RECORD.--Specific conductance: October 1968 to current year.
Water temperatures: October 1968 to current year.
Sediment records: October 1968 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 960 micromhos Oct. 16; minimum daily, 205 micromhos Feb. 19.
Water temperatures: Maximum, 25.0°C July 17, Sept. 7; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 11,900 mg/l June 5; minimum daily, 5 mg/l Feb. 13, 14.
Sediment loads: Maximum daily, 105,000 tons June 9; minimum daily, 0.20 ton Feb. 13.

Period of record: Specific conductance: Maximum daily, 1,650 micromhos Mar. 11, 1969; minimum daily, 180 micromhos Apr. 6, 1969.
Water temperatures: Maximum, 27.0°C July 14-16, 1969; freezing point on many days during winter months each year.
Sediment concentrations: Maximum daily, 11,900 mg/l June 5, 1971; minimum daily, 5 mg/l Feb. 13, 14, 1971.
Sediment loads: Maximum daily, 105,000 tons June 9, 1971; minimum daily, 0.20 tons Feb. 13, 1971.
REMARKS.--Flow affected by ice Nov. 22 to Dec. 1, Dec. 4 to Feb. 19, Mar. 1-9.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	760	720	770	750	820	560	410	750	750	480	---	750
2	760	720	750	750	820	590	490	750	750	730	610	750
3	730	750	750	750	860	640	590	750	750	640	610	730
4	700	750	720	750	860	670	710	750	750	730	640	---
5	700	770	740	780	860	690	730	750	275	710	640	---
6	670	770	780	780	870	700	770	750	225	740	660	---
7	670	770	790	760	870	720	760	750	245	690	660	720
8	700	760	750	760	880	680	780	760	250	700	660	710
9	630	760	765	780	920	705	780	760	235	700	660	760
10	630	740	700	780	765	720	780	740	285	720	660	760
11	770	760	680	760	910	730	780	740	360	550	650	770
12	850	790	690	735	880	720	780	740	520	730	670	---
13	860	760	740	720	880	720	740	720	450	730	670	770
14	910	760	750	720	900	720	740	700	670	730	670	770
15	920	810	750	750	900	740	730	680	710	730	670	770
16	960	780	750	750	530	750	750	710	700	700	670	750
17	930	740	750	760	420	730	750	710	700	720	670	730
18	900	780	770	760	270	700	760	700	700	720	670	730
19	780	750	770	760	205	680	760	700	700	740	540	730
20	780	760	750	760	240	680	760	680	700	740	650	730
21	760	760	750	760	---	630	770	680	710	700	650	760
22	790	810	750	760	240	700	780	680	730	690	650	760
23	790	780	750	760	300	730	810	760	700	660	660	760
24	760	780	770	760	410	740	820	550	690	670	660	760
25	760	850	770	760	470	760	780	750	700	670	680	760
26	740	840	760	760	470	750	780	720	700	680	710	760
27	740	830	760	780	480	770	730	810	700	680	730	740
28	740	770	760	780	510	710	730	780	710	680	730	740
29	730	770	760	800	---	440	760	---	710	640	740	760
30	750	760	780	800	---	430	760	---	400	650	730	760
31	750	---	780	820	---	420	---	---	---	650	730	---
MONTH	772	772	752	763	650	675	736	726	583	687	667	750
YEAR	711											

06600500 FLOYD RIVER AT JAMES, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.5	4.0	0	0	0	0	1.5	12.0	17.0	23.0	19.0	20.0
2	13.0	3.5	0	0	0	0	1.0	9.0	15.0	23.0	19.0	21.0
3	9.5	3.5	1.0	0	0	0	4.0	11.0	19.0	22.0	20.0	21.0
4	10.0	2.0	0	0	0	0	7.0	13.0	22.0	22.0	20.0	---
5	14.5	2.0	0	0	0	0	5.0	15.0	19.5	22.0	19.0	---
6	17.0	7.0	0	0	0	0	6.0	14.0	20.0	23.0	18.0	---
7	13.0	4.5	0	0	0	0	8.0	13.0	19.5	23.0	20.0	25.0
8	8.0	4.5	0	0	0	0	10.0	14.0	19.5	22.0	20.0	21.0
9	1.5	4.0	0.5	0	0	1.0	9.0	15.0	20.5	21.0	21.0	17.0
10	1.0	3.5	0	0	0	0	11.0	14.0	20.5	21.0	23.0	15.0
11	5.5	4.5	0	0	0	1.0	12.0	14.0	21.0	21.0	22.0	16.0
12	5.0	3.5	0	0	0	1.0	11.0	11.0	23.0	21.0	20.0	---
13	8.0	3.5	0	0	0	1.5	9.0	14.0	21.5	22.0	22.0	15.0
14	6.0	6.0	0	0	0	2.0	9.0	16.0	21.0	22.0	22.0	16.0
15	5.0	0	0	0	0	1.0	10.0	17.0	21.0	22.0	20.0	14.0
16	5.0	0	0	0	0	0.5	10.0	17.0	21.0	22.0	21.0	12.0
17	5.5	0	0	0	0	1.0	12.0	18.0	21.0	25.0	21.0	12.0
18	11.0	3.0	0	0	0	0.5	15.0	15.0	22.0	23.0	21.0	14.0
19	5.5	4.0	0	0	0	0	15.0	12.0	23.0	20.0	22.0	9.0
20	9.0	3.0	0	0	0	0.5	17.0	12.0	24.0	21.0	23.0	11.0
21	9.0	3.5	0	0	---	1.0	14.0	16.0	23.0	23.0	23.0	13.0
22	12.0	0	0	0	0	0.5	12.0	16.0	22.0	22.0	23.0	12.0
23	13.5	0	0	0	0	0.5	13.0	16.0	22.0	22.0	23.0	9.0
24	13.5	0	0	0	0	0.5	14.0	14.0	23.0	22.0	22.0	10.0
25	13.5	0	0	0	0	0.5	13.0	10.0	22.0	22.0	20.0	12.0
26	7.0	0	0	0	0	0.5	12.0	10.0	23.0	20.0	19.0	14.0
27	6.5	0	0	0	0	1.0	9.0	14.0	23.0	19.0	17.0	16.0
28	5.0	0	0	0	1.0	2.0	8.0	14.0	23.0	18.0	17.0	18.0
29	4.0	0	0	0	---	1.0	8.0	---	23.0	17.0	18.0	15.0
30	4.0	0	0	0	---	2.0	11.0	---	22.0	16.0	19.0	18.0
31	3.5	---	0	0	---	3.5	---	---	---	18.0	19.0	---
MONTH	8.5	2.5	0	0	0	0.5	10.0	14.0	21.0	21.5	20.5	15.0
YEAR	9.5											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT., 1970					
08...	1415	60	830	8.5	5.5
NOV.					
12...	1505	83	1000	9.8	5.0
DEC.					
09...	1545	64	850	--	1.0
JAN., 1971					
12...	1330	20	850	7.4	.0
FEB.					
10...	1440	14	950	7.6	.0
25...	1240	347	600	--	2.0
MAR.					
09...	1600	143	850	7.9	2.5
19...	1140	94	950	--	1.0
29...	1320	563	550	7.9	6.0
APR.					
14...	1425	114	900	--	11.0
JUNE					
10...	0920	5270	270	6.9	19.5
14...	1200	974	720	--	22.0
28...	1200	210	600	--	23.5
JULY					
15...	1335	205	800	8.1	24.5
22...	1425	116	630	--	26.0
AUG.					
11...	1540	60	700	7.9	25.0
SEP.					
02...	1200	42	640	7.9	24.5
08...	1450	40	740	7.9	23.0

06600500 FLOYD RIVER AT JAMES, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	36	90	8.7	63	91	15	90	348	85
2	35	118	11	62	84	14	84	232	53
3	34	90	8.3	63	129	22	81	274	60
4	34	62	5.7	66	137	24	52	78	11
5	34	67	6.2	63	170	29	50	113	15
6	34	52	4.8	64	190	33	50	93	13
7	36	169	16	63	147	25	52	142	20
8	57	372	57	62	148	25	60	153	25
9	84	468	106	76	232	48	63	121	21
10	95	412	106	88	242	57	50	82	11
11	102	531	146	84	200	45	45	61	7.4
12	133	585	210	84	211	48	40	98	11
13	146	508	200	82	192	43	35	78	7.4
14	124	330	110	80	154	33	30	98	7.9
15	108	263	77	71	193	37	28	140	11
16	95	256	66	86	118	27	26	98	6.9
17	86	211	49	85	182	42	25	119	8.0
18	80	211	46	75	158	32	24	64	4.1
19	76	252	52	89	240	58	23	66	4.1
20	72	217	42	91	248	61	23	88	5.5
21	67	224	41	88	209	50	23	135	8.4
22	64	198	34	60	162	26	22	83	4.9
23	61	243	40	55	222	33	22	104	6.2
24	61	312	51	55	102	15	22	166	9.9
25	61	236	39	70	44	8.3	22	127	7.5
26	62	191	32	80	71	15	22	59	3.5
27	63	146	25	90	166	40	22	115	6.8
28	61	180	30	85	169	39	22	90	5.3
29	60	152	25	86	105	24	22	100	5.9
30	62	97	16	88	100	24	22	75	4.5
31	64	95	16	--	--	--	22	42	2.5
TOTAL	2187	--	1676.7	2254	--	992.3	1174	--	452.7

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	22	57	3.4	19	25	1.3	150	190	77
2	22	50	3.0	18	42	2.0	120	120	39
3	22	53	3.1	18	45	2.2	100	100	27
4	21	63	3.6	17	64	2.9	100	140	38
5	21	82	4.6	16	18	.78	100	390	105
6	20	86	4.6	15	23	.93	110	450	134
7	20	82	4.4	14	23	.87	110	430	128
8	20	111	6.0	13	22	.77	120	210	68
9	20	73	3.9	14	92	3.5	150	320	130
10	20	44	2.4	14	142	5.4	139	330	124
11	20	50	2.7	14	17	.64	146	360	142
12	20	45	2.4	15	7	.28	149	380	153
13	20	44	2.4	15	5	.20	162	460	201
14	20	48	2.6	16	5	.22	170	500	230
15	20	65	3.5	18	12	.58	181	430	210
16	20	53	2.9	30	48	3.9	171	470	217
17	20	54	2.9	100	290	78	144	340	132
18	20	52	2.8	600	1940	3140	137	370	137
19	20	54	2.9	9000	2080	50500	112	250	76
20	20	36	1.9	10000	1380	37300	125	330	111
21	20	36	1.9	3770	930	9470	164	570	252
22	21	66	3.7	850	650	1490	140	300	113
23	22	49	2.9	396	270	289	129	220	77
24	23	40	2.5	477	280	361	121	200	65
25	24	54	3.5	422	520	592	117	180	57
26	20	38	2.1	406	870	954	113	170	52
27	20	50	2.7	251	600	407	117	240	76
28	20	57	3.1	166	550	247	707	5670	13400
29	20	25	1.4	--	--	--	582	3600	5950
30	20	43	2.3	--	--	--	550	2110	3130
31	20	35	1.9	--	--	--	730	3060	6030
TOTAL	638	--	94.0	26704	--	104854.47	6166	--	31681

06600500 FLOYD RIVER AT JAMES, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	519	2340	3280	96	84	22	54	190	28
2	345	1150	1070	88	73	17	50	200	27
3	265	700	501	84	93	21	48	230	30
4	226	500	305	78	153	32	105	1580	1610
5	201	420	228	80	142	31	3380	11900	102000
6	179	359	174	74	165	33	4980	6480	87100
7	162	313	137	72	119	23	4280	7100	82000
8	151	295	120	70	116	22	4970	6000	80500
9	142	283	109	65	109	19	6990	5550	105000
10	134	276	100	64	103	18	5180	5550	77600
11	125	271	91	70	120	23	2910	3800	29900
12	122	249	82	86	140	33	1460	2600	10200
13	117	240	76	70	133	25	1780	6980	35700
14	112	184	56	59	115	18	980	2120	5610
15	111	192	58	56	103	16	746	1210	2440
16	110	213	63	52	111	16	624	950	1600
17	109	174	51	51	158	22	537	870	1260
18	112	160	48	52	150	21	510	970	1340
19	101	150	41	51	110	15	449	760	921
20	104	162	45	49	107	14	411	580	644
21	149	364	148	51	123	17	368	420	417
22	147	211	84	46	108	13	334	380	343
23	125	159	54	49	354	60	310	320	268
24	116	128	40	85	2470	602	291	370	291
25	108	125	36	100	400	108	266	380	273
26	101	126	34	89	390	94	247	320	213
27	114	155	48	76	270	55	232	300	188
28	117	90	28	66	330	59	209	290	164
29	111	83	25	57	290	45	227	832	696
30	106	81	23	54	270	39	468	5500	6950
31	--	--	--	55	210	31	--	--	--
TOTAL	4641	--	7155	2095	--	1564	43396	--	635313

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	435	3650	5060	86	170	39	44	134	16
2	286	920	710	82	164	36	43	139	16
3	238	530	341	80	173	37	40	213	23
4	209	410	231	75	164	33	40	183	20
5	258	780	543	72	150	29	43	198	23
6	232	670	420	69	138	26	41	196	22
7	197	390	207	68	139	26	41	187	21
8	183	280	138	68	141	26	40	158	17
9	168	480	218	67	147	27	45	114	14
10	258	2350	1830	64	136	24	44	136	16
11	310	2300	2140	60	132	21	45	133	16
12	308	720	599	56	120	18	41	100	11
13	282	640	487	56	116	18	41	91	10
14	230	500	311	54	125	18	39	82	8.6
15	205	380	210	54	122	18	39	64	6.7
16	181	320	156	54	118	17	37	71	7.1
17	164	260	115	52	118	17	37	48	4.8
18	147	280	111	52	114	16	38	42	4.3
19	138	250	93	77	996	177	38	58	6.0
20	128	250	86	65	240	42	37	64	6.4
21	120	260	84	59	132	21	38	39	4.0
22	114	245	75	56	178	27	39	50	5.3
23	107	230	66	54	171	25	41	49	5.4
24	138	373	135	54	167	24	39	61	6.4
25	126	293	100	51	162	22	40	83	9.0
26	112	217	66	50	143	19	39	93	9.8
27	106	196	56	50	137	18	36	84	8.2
28	112	213	64	49	158	21	35	91	8.6
29	102	195	54	46	178	22	34	87	8.0
30	93	160	40	44	156	19	36	88	8.6
31	88	157	37	45	110	13	--	--	--
TOTAL	5775	--	14783	1869	--	896	1190	--	342.2

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 98089
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 799804.37

06600500 FLOYD RIVER AT JAMES, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM
FEB.												
19...	0730	.0	--	6490	2100	36800	46	56	68	80	90	96
20...	0700	.0	--	1430	1570	6060	54	68	70	75	85	90
MAR.												
30...	0800	2.0	--	555	2250	3370	46	52	61	76	89	94
MAY												
24...	0700	14.0	--	99	3760	1010	50	65	84	91	93	99
27...	1445	19.5	3	82	--	--	--	--	--	--	--	--
JUNE												
05...	0700	18.0	--	2910	14500	114000	51	55	66	82	92	99
09...	0800	19.0	--	7340	5340	106000	56	58	63	67	74	95
30...	0800	22.0	--	549	5530	8200	54	57	68	81	95	99

DATE	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	METHOD OF ANALYSIS
FEB.												
19...	100	--	--	--	--	--	--	--	--	--	--	SPWC
20...	100	--	--	--	--	--	--	--	--	--	--	SPWC
MAR.												
30...	100	--	--	--	--	--	--	--	--	--	--	SPWC
MAY												
24...	100	--	--	--	--	--	--	--	--	--	--	SPWC
27...	--	--	1	2	6	40	74	82	90	94	100	SV
JUNE												
05...	100	--	--	--	--	--	--	--	--	--	--	VPWC
09...	98	100	--	--	--	--	--	--	--	--	--	VPWC
30...	99	100	--	--	--	--	--	--	--	--	--	VPWC

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

06600520 FLOYD RIVER AT SIOUX CITY, IOWA

LOCATION.--Lat 42°29'19", long 96°23'29", in NE1/4 NE1/4 sec.33, T.89 N., R.47 W., Woodbury County, at bridge on Dace Street in Sioux City, and 0.4 mile upstream from mouth.
DRAINAGE AREA.--921 sq mi.
PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.
REMARKS.--Water discharge estimated on basis of records at gaging station 8.6 miles upstream at James. No significant inflow between gaging station and sampling site.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)
OCT.												
08...	60	--	56	24	--	37	6.0	--	.19	.8	.38	--
NOV.												
12...	82	--	130	41	--	190	36	--	.21	5.3	.40	--
DEC.												
09...	68	260	130	44	39	190	40	.5	.68	5.7	.12	20
JAN.												
13...	20	--	140	43	--	170	42	--	.10	3.0	.40	--
FEB.												
11...	14	--	140	39	--	170	99	--	.56	2.1	.42	--
MAR.												
10...	143	380	110	30	24	130	40	.8	1.4	3.6	.52	--
APR.												
14...	114	--	120	40	--	160	30	--	.08	5.6	.39	--
26...	--	--	--	--	--	--	--	--	--	--	--	340
MAY												
12...	110	--	100	37	--	150	50	--	.01	.7	.25	--
JUNE												
10...	5270	48	42	10	5.0	36	6.0	.5	.03	4.2	.01	.00
JULY												
15...	205	--	94	37	--	130	16	--	.02	6.9	.28	--
AUG.												
11...	60	--	76	35	--	150	34	--	.02	.2	.34	--
SEPT.												
08...	40	330	64	33	27	130	30	.5	.02	.3	.39	.00

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECI-FIC CONO-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	BIO-CHEM-ICAL OXYGEN DEMAND 1MG/L)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.												
08...	314	.43	50.9	--	--	493	8.4	5.0	11.4	93	5.4	26000
NOV.												
12...	656	.89	145	--	--	1000	--	3.0	14.4	109	4.8	2200
DEC.												
09...	700	.95	129	14	.8	1060	--	.5	--	--	--	--
JAN.												
13...	648	.88	35.0	--	--	1100	7.4	.0	3.4	24	4.6	4200
FEB.												
11...	760	1.03	28.7	--	--	1150	7.5	.0	6.4	46	9.0	2100
MAR.												
10...	506	.69	195	12	.5	820	7.7	1.5	14.0	104	7.2	2000
APR.												
14...	608	.83	187	--	--	870	8.3	9.0	11.2	100	4.2	75
MAY												
12...	558	.76	166	--	--	890	8.7	13.0	11.2	109	6.1	1600
JUNE												
10...	216	.29	3070	7	.2	270	6.9	19.0	6.2	72	4.3	48000
JULY												
15...	512	.70	283	--	--	900	7.6	24.5	8.4	104	6.8	1500
AUG.												
11...	464	.63	75.2	--	--	740	7.8	21.5	10.4	121	9.8	500
SEPT.												
08...	420	.57	45.4	17	.7	700	7.9	21.5	6.2	73	14	1200

06600520 FLOYD RIVER AT SIOUX CITY, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	STREPTOCOCCI (COLONIES PER 100 ML)	PHENOLS (UG/L)	CYANIDE (CN) (MG/L)	ALDRIN (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DIAZINON (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)
OCT.												
08...	--	2	.00	--	--	--	--	--	--	--	--	--
NOV.												
12...	--	1	--	--	--	--	--	--	--	--	--	--
DEC.												
09...	--	54	--	--	--	--	--	--	--	--	--	--
JAN.												
13...	--	0	--	--	--	--	--	--	--	--	--	--
MAR.												
10...	2300	0	.02	--	--	--	--	--	--	--	--	--
APR.												
14...	--	2	--	--	--	--	--	--	--	--	--	--
MAY												
12...	--	0	--	--	--	--	--	--	--	--	--	--
JUNE												
10...	22000	0	--	--	--	--	--	--	--	--	--	--
JULY												
15...	--	0	--	--	--	--	--	--	--	--	--	--
AUG.												
11...	--	12	--	--	--	--	--	--	--	--	--	--
SEPT.												
08...	240	0	.00	--	--	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
09...	--	--	--	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR.												
10...	--	--	--	.00	.00	.00	.00	.00	.00	.01	.00	.00
JUNE												
10...	--	--	--	.02	.00	.00	.00	.01	.00	.05	.00	.00
SEPT												
08	--	--	--	.00	.00	.00	.00	.00	--	.01	.00	.00

DATE	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALATHION (UG/L)	PARATHION (UG/L)	METHYL PARATHION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BERYLLIUM (BE) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)
DEC.												
09...	--	--	--	--	--	--	--	--	5	0	--	--
MAR.												
10...	--	--	--	--	--	--	--	--	0	20	--	0
JUNE												
10...	--	--	--	--	--	--	--	--	0	0	1	0
APR.												
26...	--	--	--	--	--	--	--	--	--	--	2	--
SEPT.												
08...	--	--	--	--	--	--	--	--	9	0	0	3
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
09...	.00	.00	.00	.00	.00	.00	.00	.00	--	--	--	--
MAR.												
10...	.00	.01	.00	.00	.00	.00	.00	.00	--	--	--	--
JUNE												
10...	.00	.00	.00	.00	.00	.42	.02	.00	--	--	--	--
SEPT												
08	.00	.00	--	--	--	.00	.00	.00	--	--	--	--

06600520 FLOYD RIVER AT SIOUX CITY, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLY-BDENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DEC. 09...	63	--	1.4	0	--	2	0	160
MAR. 10...	15	--	3.3	110	--	6	3	200
JUNE 10...	8	3	--	2	5	12	0	10
JULY 15...	--	--	--	--	--	6	--	--
APR. 26...	--	16	--	--	10	--	--	--
SEPT. 08...	6	2	--	8	4	9	0	20

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	FLOATING ALGAE MATS (SEVERITY)	FLOATING DEBRIS (SEVERITY)	DETERGENT SUDS (SEVERITY)	ODOR FISH (SEVERITY)	FLOATING GARBAGE (SEVERITY)	GAS BUBBLES (SEVERITY)	FLOATING OR SOLID ICE COVER (SEVERITY)	ATMOSPHERIC ODOR (SEVERITY)	OIL-GREASE (SEVERITY)	FRESH FLOATING SEWAGE SOLIDS (SEVERITY)	FLOATING SLUDGE (SEVERITY)
OCT. 08...	0	0	0	0	0	0	0	1	1	0	0
NOV. 12...	0	0	0	0	0	0	0	0	2	0	0
DEC. 09...	0	0	0	0	0	0	2	0	0	0	0
JAN. 13...	0	0	0	0	0	0	4	0	0	0	0
FEB. 11...	0	0	0	0	0	0	4	0	0	0	0
MAR. 10...	0	0	0	0	0	0	1	0	0	0	0
APR. 14...	0	0	1	0	1	1	0	1	1	0	0
MAY 12...	1	0	0	0	0	1	0	0	1	0	0
JUNE 10...	0	0	0	0	0	0	0	0	0	0	0
AUG. 11...	0	0	0	0	0	0	0	0	0	0	0
SEP. 08...	0	0	0	0	0	1	0	0	0	0	0

Coding for severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme

06604000 SPIRIT LAKE NEAR ORLEANS, IOWA

LOCATION.--Lat 43°28'12", long 95°07'25", in NE1/4 NW1/4 sec.20, T.100 N., R.36 W., Dickinson County, at gaging station, 2.3 miles upstream from lake outlet, and 2.3 miles northwest of Orleans.
DRAINAGE AREA.--75.6 sq mi.
PERIOD OF RECORD.--Water temperatures: November 1968 to current year.
EXTREMES.--Current year: Water temperatures: Maximum, 18.0°C July 1-4, 22-24; minimum, 1.0°C Jan. 15-17, Feb. 16-20.

Period of record: Water temperatures: Maximum, 24.0°C July 30, 31, 1970; freezing point on many days during winter period in 1968, 1969, 1970.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	14.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
2	14.5	14.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
3	14.5	14.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
4	14.5	14.0	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
5	14.0	14.0	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
6	14.0	14.0	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
7	14.0	13.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
8	13.5	12.0	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
9	12.0	12.0	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
10	12.0	12.0	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
11	12.0	11.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
12	11.5	11.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	1.5
13	11.5	11.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5
14	11.5	11.5	---	---	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5
15	11.5	11.5	---	---	2.0	1.5	2.0	1.0	2.0	1.5	1.5	1.5
16	11.5	11.5	---	---	1.5	1.5	1.0	1.0	2.0	1.0	1.5	1.5
17	11.5	11.5	---	---	1.5	1.5	1.5	1.0	1.0	1.0	1.5	1.5
18	11.5	11.5	---	---	1.5	1.5	1.5	1.5	1.0	1.0	2.0	1.5
19	11.5	11.0	---	---	1.5	1.5	1.5	1.5	1.0	1.0	2.0	2.0
20	---	---	---	---	1.5	1.5	1.5	1.5	1.5	1.0	2.0	2.0
21	---	---	---	---	2.0	1.5	1.5	1.5	1.5	1.5	2.0	2.0
22	---	---	---	---	2.0	2.0	2.0	1.5	1.5	1.5	2.0	2.0
23	---	---	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
24	---	---	---	---	2.0	2.0	2.0	2.0	1.5	1.5	2.0	2.0
25	---	---	---	---	2.0	2.0	2.0	1.5	1.5	1.5	2.0	2.0
26	---	---	---	---	2.0	2.0	1.5	1.5	1.5	1.5	2.0	2.0
27	---	---	---	---	2.0	2.0	1.5	1.5	1.5	1.5	2.0	2.0
28	---	---	---	---	2.0	2.0	1.5	1.5	2.0	1.5	2.0	2.0
29	---	---	---	---	2.0	2.0	1.5	1.5	---	---	2.0	2.0
30	---	---	2.0	2.0	2.0	2.0	1.5	1.5	---	---	2.0	2.0
31	---	---	---	---	2.0	2.0	1.5	1.5	---	---	2.0	2.0
MONTH	---	---	---	---	2.0	1.5	2.0	1.0	2.0	1.0	2.0	1.5

06604000 SPIRIT LAKE NEAR ORLEANS, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.0	2.0	6.0	6.0	10.0	10.0	18.0	17.0	15.0	14.5	15.5	15.0
2	2.0	2.0	6.0	6.0	10.5	10.0	18.0	18.0	15.5	15.0	15.5	15.5
3	2.0	2.0	6.0	6.0	12.0	10.5	18.0	18.0	15.5	15.0	15.5	15.5
4	2.0	2.0	6.5	6.0	12.0	11.5	18.0	17.0	15.5	15.0	15.5	15.5
5	2.0	2.0	6.5	6.5	11.5	11.5	17.0	17.0	15.5	15.0	15.5	15.5
6	2.0	2.0	6.5	6.5	11.5	11.5	17.0	17.0	15.0	15.0	15.5	15.0
7	2.0	2.0	8.0	6.5	11.5	11.5	17.0	17.0	15.0	15.0	15.0	15.0
8	3.0	2.0	8.0	8.0	11.5	11.5	17.0	17.0	15.0	15.0	15.0	14.5
9	3.0	2.0	8.0	8.0	11.5	11.5	17.0	17.0	15.0	15.0	14.5	14.5
10	2.0	2.0	8.0	8.0	11.5	11.5	17.0	16.5	15.5	15.0	14.5	14.5
11	2.0	2.0	8.0	8.0	11.5	11.5	16.5	16.5	15.5	15.5	14.5	14.5
12	3.0	2.0	8.0	8.0	12.0	11.5	16.5	16.5	15.5	15.0	14.5	14.5
13	3.0	3.0	8.0	7.0	12.0	12.0	16.5	16.5	15.0	15.0	14.5	14.5
14	3.0	3.0	8.0	7.0	13.5	12.0	16.5	16.0	15.0	14.5	14.5	13.5
15	3.0	3.0	9.0	8.0	13.5	13.5	16.0	16.0	15.0	15.0	13.5	13.5
16	3.0	3.0	9.0	9.0	13.5	13.5	16.5	16.0	15.0	15.0	13.5	---
17	3.5	3.0	9.5	9.0	15.0	13.5	16.5	16.5	15.0	15.0	13.5	12.0
18	3.5	3.5	9.5	9.5	15.5	15.0	16.5	16.5	15.5	15.0	---	---
19	4.0	3.5	9.5	9.5	16.0	15.5	16.5	16.0	15.5	15.5	---	---
20	4.5	4.0	9.5	9.5	16.0	16.0	16.5	16.0	15.5	15.5	---	---
21	5.5	4.5	9.5	9.5	16.0	16.0	16.5	16.5	15.5	15.5	---	---
22	6.0	5.5	9.5	9.5	16.0	16.0	18.0	16.5	15.5	15.5	---	---
23	6.0	6.0	9.5	9.5	16.0	16.0	18.0	18.0	15.5	15.5	---	---
24	6.0	6.0	9.5	9.5	16.0	16.0	18.0	17.0	15.5	15.5	---	---
25	6.0	6.0	9.5	9.5	16.0	16.0	17.0	17.0	15.5	15.5	---	---
26	6.0	6.0	9.5	9.5	16.5	16.0	17.0	16.5	15.5	15.0	---	---
27	6.0	6.0	9.5	9.5	16.5	16.5	16.5	16.5	15.5	15.0	15.5	---
28	6.0	6.0	9.5	9.5	16.5	16.5	16.5	16.0	15.5	15.5	15.5	15.5
29	6.0	6.0	10.0	9.5	17.0	16.5	16.0	15.5	15.5	15.5	15.5	15.5
30	6.0	6.0	10.0	10.0	17.0	17.0	15.5	14.5	15.5	15.5	---	---
31	---	---	10.0	10.0	---	---	14.5	14.5	15.5	15.0	---	---
MONTH	6.0	2.0	10.0	6.0	17.0	10.0	18.0	14.5	15.5	14.5	---	---
YEAR	18.0	1.0										

06607513 LITTLE SIOUX RIVER AT RIVER SIOUX, IOWA

LOCATION.--Lat 41°48'36", long 96°03'05", in NW1/4 SW1/4 sec.23, T.81 N., R.45 W., Harrison County, at bridge on U.S. Highway 75, 0.2 mile north of River Sioux, and 1 mile upstream from mouth.
DRAINAGE AREA.--3,600 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: July 1969 to current year.
REMARKS.--Water discharge estimated on basis of records at gaging station 12.5 miles upstream near Turin. No significant inflow between gaging station and sampling site.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)
OCT.												
08...	810	--	71	31	--	114	24	--	.02	.1	.32	--
NOV.												
12...	1000	--	100	35	--	120	18	--	.18	6.5	.31	--
DEC.												
09...	657	310	110	40	16	140	18	.4	.08	6.8	.00	30
JAN.												
13...	228	--	130	41	--	160	28	--	.11	7.2	.16	--
FEB.												
11...	200	--	140	42	--	160	25	--	.16	6.3	.56	--
MAR.												
10...	1600	48	79	22	9.1	78	16	.6	.73	4.2	.46	--
APR.												
14...	2200	--	91	30	--	97	12	--	.01	5.3	.55	--
27...	--	--	--	--	--	--	--	--	--	--	--	180
MAY												
12...	862	--	75	34	--	110	16	--	.01	1.0	.18	--
JUNE												
09...	7380	62	51	12	7.9	40	8.0	.4	.14	4.4	.11	240
JULY												
15...	1960	--	87	32	--	90	14	--	.03	7.5	.13	--
AUG.												
11...	410	--	60	32	--	110	18	--	.01	.1	.10	--
SEPT.												
08...	206	290	63	34	20	120	24	.4	.01	.2	.30	120

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECI-FIC CON-DUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.												
08...	434	.59	949	--	--	690	8.5	11.0	9.8	92	--	9200
NOV.												
12...	496	.67	1340	--	--	825	--	3.0	11.6	99	4.6	1500
DEC.												
09...	566	.77	1000	7	.3	858	--	.5	--	--	--	--
JAN.												
13...	652	.89	401	--	--	975	7.5	.0	7.4	52	3.0	880
FEB.												
11...	632	.86	341	--	--	950	7.3	.0	7.0	50	5.8	1100
MAR.												
10...	354	.48	1530	6	.2	600	7.9	3.0	12.8	98	4.4	250
APR.												
14...	428	.58	2540	--	--	680	8.0	10.5	9.8	90	3.8	120
MAY												
12...	406	.55	945	--	--	625	8.6	13.5	11.0	108	7.2	1200
JUNE												
09...	262	.36	5220	9	.3	280	6.8	20.5	6.0	68	6.6	34000
JULY												
15...	430	.58	2280	--	--	700	7.6	24.0	6.8	83	4.7	2300
AUG.												
11...	368	.50	407	--	--	650	7.9	26.0	7.2	110	3.6	120
SEPT.												
08...	396	.54	220	13	.5	680	7.6	21.5	5.4	64	8.2	120

06607513 LITTLE SIOUX RIVER AT RIVER SIOUX, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	STREPTOCOCCI (COLONIES PER 100 ML)	CYANIDE (CN) (MG/L)	ALORIN (UG/L)	CHLORDANE (UG/L)	ODD (UG/L)	DDE (UG/L)	DDT (UG/L)	DIAZINON (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)
OCT. 08...	--	.00	--	--	--	--	--	--	--	--	--
DEC. 09...	--	.01	--	--	--	--	--	--	--	--	--
MAR. 10...	1600	.02	--	--	--	--	--	--	--	--	--
JUNE 09...	19000	--	--	--	--	--	--	--	--	--	--
SEPT. 08...	66	.00	--	--	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES											
DEC. 09...	--	--	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR. 10...	--	--	.00	.00	.00	.00	.00	.00	.00	.00	.00
JUNE 09...	--	--	.02	.00	.00	.00	.02	.00	.05	.00	.00
SEPT 08	--	--	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALATHION (UG/L)	PARATHION (UG/L)	METHYL PARATHION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BERYLLIUM (BE) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)
DEC. 09...	--	--	--	--	--	--	--	--	4	10	--	0
MAR. 10...	--	--	--	--	--	--	--	--	10	20	--	2
APR. 27...	--	--	--	--	--	--	--	--	--	--	11	--
JUNE 09...	--	--	--	--	--	--	--	--	0	0	2	0
SEPT. 08...	--	--	--	--	--	--	--	--	9	0	0	0
ANALYSES OF ADDITIONAL SAMPLES												
DEC. 09...	.00	.00	.00	.00	.00	.00	.00	.00	--	--	--	--
MAR. 10...	.00	.01	.00	.00	.00	.00	.00	.00	--	--	--	--
JUNE 09...	.00	.00	.00	.00	.00	.12	.02	.00	--	--	--	--
SEPT 08	.00	.00	--	--	--	.00	.00	.00	--	--	--	--

DATE	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED MOLYBDENUM (MO) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
DEC. 09...	8	--	.5	0	--	1	1	180
MAR. 10...	8	--	.0	120	--	5	2	180
APR. 27...	--	5	--	--	6	--	--	--
JUNE 09...	18	4	--	0	7	22	0	20
JULY 15...	--	--	--	--	--	7	--	--
SEPT. 08...	7	6	--	0	7	4	2	20

06607513 LITTLE SIOUX RIVER AT RIVER SIOUX, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	SILICA (SIO2) (MG/L)	IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)
MAR., 1970* 30...	2.0	50	50	45	10	5.6	5.0	131	0	107	40

DATE	CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
MAR., 1970* 30...	6.0	.2	11	200	.27	154	47	7	.2	330	7.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	FLOATING ALGAE MATS (SEVERITY)	FLOATING DEBRIS (SEVERITY)	DETERGENT SUDS (SEVERITY)	DEAD FISH (SEVERITY)	FLOATING GARBAGE (SEVERITY)	GAS BUBBLES (SEVERITY)	FLOATING OR SOLID ICE COVER (SEVERITY)	ATMOSPHERIC ODOR (SEVERITY)	OIL-GREASE (SEVERITY)	FRESH FLOATING SEWAGE SOLIDS (SEVERITY)	FLOATING SLUDGE (SEVERITY)
OCT. 06...	0	0	0	0	0	0	0	0	0	0	0
NOV. 12...	0	0	0	0	0	0	0	0	0	0	0
DEC. 09...	0	0	0	0	0	0	1	0	0	0	0
JAN. 13...	0	0	0	0	0	0	4	0	0	0	0
FEB. 11...	0	0	0	0	0	0	4	0	0	0	0
MAR. 10...	0	0	0	0	0	0	1	0	0	0	0
APR. 14...	0	0	0	0	0	1	0	1	0	0	0
MAY 12...	0	0	0	0	0	0	0	0	0	0	0
JUNE 09...	0	0	0	0	0	0	0	0	0	0	0
JULY 15...	0	0	0	0	0	0	0	0	0	0	0
AUG. 11...	0	0	0	0	0	0	0	0	0	0	0
SEP. 08...	0	0	0	0	0	0	0	0	0	0	0

Coding for severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme

* Laboratory analysis furnished by State Hygienic Lab., Des Moines, Iowa

06608505 SOLDIER RIVER NEAR MONDAMIN, IOWA

LOCATION.--Lat 41°45'14", long 96°02"13", in NE1/4 SW1/4 sec.12, T.80 N., R.45 W., Harrison County, at bridge on county highway, 3 miles northwest of Mondamin, and 3.2 miles upstream from mouth.
DRAINAGE AREA.--440 sq mi, approximately.
PERIOD OF RECORD.--Chemical analyses: July 1970 to current year.
REMARKS.--Water discharge estimated on basis of records at gaging station 9.9 miles upstream at Pisgah. No significant inflow between gaging station and sampling site.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	SULFATE (SO4) (MG/L)	CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)
OCT.												
08...	37	--	66	24	--	94	25	--	.01	.1	.34	--
NOV.												
12...	33	--	87	33	--	49	12	--	.19	1.7	.20	--
DEC.												
09...	28	180	97	37	12	53	10	.3	.02	1.7	.00	.00
JAN.												
13...	8.0	--	110	36	--	46	7.0	--	.02	1.8	.00	--
FEB.												
11...	13	--	110	33	--	49	6.5	--	.12	2.3	.00	--
MAR.												
10...	60	420	73	24	8.1	40	10	.5	1.2	1.4	.15	--
APR.												
14...	48	--	94	32	--	52	7.0	--	.01	1.2	.20	--
27...	--	--	--	--	--	--	--	--	--	--	--	340
MAY												
12...	46	--	86	31	--	46	7.0	--	.01	.7	.16	--
JUNE												
09...	89	53	52	12	6.8	23	6.0	.6	.52	12	6.7	100
JULY												
15...	26	--	66	29	--	43	8.0	--	.02	.0	.08	--
AUG.												
11...	14	--	71	32	--	41	10	--	.02	.1	.10	--
SEPT.												
08...	13	68	74	28	11	45	32	.5	.01	.1	.33	.00

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.												
08...	412	.56	41.2	--	--	602	8.8	16.5	11.2	118	4.1	9600
NOV.												
12...	390	.53	34.7	--	--	700	--	3.0	12.8	109	4.8	--
DEC.												
09...	464	.63	35.1	6	.3	754	--	.5	--	--	--	--
JAN.												
13...	464	.63	10.0	--	--	760	7.4	.0	5.7	41	2.5	590
FEB.												
11...	450	.61	15.8	--	--	800	7.4	.0	5.2	37	3.0	370
MAR.												
10...	322	.44	52.2	6	.2	600	7.8	3.0	12.8	98	8.2	450
APR.												
14...	410	.56	53.1	--	--	700	7.7	9.0	11.4	102	2.7	110
MAY												
12...	382	.52	47.4	--	--	650	8.4	9.5	10.8	97	2.5	2000
JUNE												
09...	222	.30	53.3	8	.2	265	7.3	19.5	7.6	84	7.6	32000
JULY												
15...	328	.45	23.0	--	--	600	7.9	22.0	8.6	102	3.2	750
AUG.												
11...	346	.47	13.1	--	--	650	7.9	21.5	9.6	112	.8	190
SEPT.												
08...	358	.49	12.6	7	.3	630	8.2	19.0	9.6	107	2.7	1600

06608505 SOLDIER RIVER NEAR MONDAMIN, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	STREPTOCOCCI FICOLONIES PER 100 ML	CYANIDE (CN) (MG/L)	ALORIN (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DIAZINON (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)
OCT. 08...	--	.00	--	--	--	--	--	--	--	--	--
DEC. 09...	--	.00	--	--	--	--	--	--	--	--	--
MAR. 10...	3000	.02	--	--	--	--	--	--	--	--	--
JUNE 09...	37000	--	--	--	--	--	--	--	--	--	--
SEPT. 08...	190	.00	--	--	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES											
DEC. 09...	--	--	.00	.00	.00	.00	.00	.00	.00	.00	.00
MAR. 10...	--	--	.00	.00	.00	.00	.00	.00	.01	.00	.00
JUNE 09...	--	--	.02	.00	.00	.00	.02	.00	.05	.00	.00
SEPT 08...	--	--	.00	.00	.00	.00	.00	--	.01	.00	.00

DATE	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALATHION (UG/L)	PARATHION (UG/L)	METHYL PARATHION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BERYLLIUM (BE) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)
DEC. 09...	--	--	--	--	--	--	--	--	7	10	--	0
MAR. 10...	--	--	--	--	--	--	--	--	10	20	--	0
APR. 27...	--	--	--	--	--	--	--	--	--	--	4	--
JUNE 09...	--	--	--	--	--	--	--	--	0	0	1	0
SEPT. 08...	--	--	--	--	--	--	--	--	14	0	0	0
ANALYSES OF ADDITIONAL SAMPLES												
DEC. 09...	.00	.00	.00	.00	.00	.00	.00	.00	--	--	--	--
MAR. 10...	.00	.01	.00	.00	.00	.00	.00	.00	--	--	--	--
JUNE 09...	.00	.00	.00	.00	.00	1.3	.03	.00	--	--	--	--
SEPT 08...	.00	.00	--	--	--	.34	.00	.00	--	--	--	--

06608505 SOLDIER RIVER NEAR MONDAMIN, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLY-BDENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
DEC. 09...	12	--	<.5	0	--	9	1	240
MAR. 10...	24	--	2.0	56	--	7	3	200
APR. 27...	--	16	--	--	9	--	--	--
JUNE 09...	20	8	--	0	6	8	0	30
JULY 15...	--	--	--	--	--	5	--	--
SEPT. 08...	10	6	24	1	3	6	1	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	FLOATING ALGAE MATS (SEVERITY)	FLOATING DEBRIS (SEVERITY)	DETERGENT SUDS (SEVERITY)	DEAD FISH (SEVERITY)	FLOATING GARBAGE (SEVERITY)	GAS BUBBLES (SEVERITY)	FLOATING OR SOLID ICE COVER (SEVERITY)	ATMOSPHERIC ODOR (SEVERITY)	OIL-GREASE (SEVERITY)	FRESH FLOATING SEWAGE SOLIDS (SEVERITY)	FLOATING SLUDGE (SEVERITY)
OCT. 08...	2	0	0	0	0	0	0	0	0	0	0
NOV. 12...	0	0	0	0	0	0	0	0	0	0	0
DEC. 09...	0	0	0	0	0	0	3	0	0	0	0
JAN. 13...	0	0	0	0	0	0	4	0	0	0	0
FEB. 11...	0	0	0	0	0	0	4	0	0	0	0
MAR. 10...	0	0	0	0	0	0	2	0	0	0	0
APR. 14...	0	0	0	0	0	0	0	0	0	0	0
MAY 12...	0	0	0	0	0	0	0	0	0	0	0
JUNE 09...	0	0	0	0	0	0	0	0	0	0	0
JULY 15...	0	0	0	0	0	0	0	0	0	0	0
AUG. 11...	0	0	0	0	0	0	0	0	0	0	0
SEP. 08...	0	0	0	0	0	0	0	0	0	0	0

Coding for severity: 0-None, 1-Mild, 2-Moderate, 3-Serious, 4-Extreme

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IOWA

LOCATION.--Lat 41°00'41", long 95°14'07", in NW1/4 SE1/4 sec.29, T.72 N., R.38 W., Montgomery County, at gage on Coolbaugh bridge in Red Oak, and 0.2 mile upstream from Red Oak Creek.
DRAINAGE AREA.--894 sq mi.
PERIOD OF RECORD.--Specific conductance: October 1968 to current year.
Water temperatures: October 1962 to current year.
Sediment records: October 1962 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 540 micromhos Sept. 23; minimum daily, 130 micromhos Feb. 20.
Water temperatures: Maximum, 32.0°C Aug. 10, 22; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 28,200 mg/l May 19; minimum daily, 11 mg/l Sept. 23.
Sediment loads: Maximum daily, 225,000 tons June 6; minimum daily, 0.88 ton Feb. 12.

Period of record: Specific conductance: Maximum daily, 560 micromhos Dec. 31, 1968, Jan. 1, 1969; minimum daily, 130 micromhos Feb. 20, 1971.
Water temperatures: Maximum, 34.0°C July 20, 1963, Aug. 5, 1968; freezing point on many days during winter months each year.
Sediment concentrations: Maximum daily, 48,900 mg/l May 26, 1964; minimum daily, 3 mg/l Oct. 11, 25, 1966.
Sediment loads: Maximum daily, 970,000 tons May 26, 1964; minimum daily, 0.4 ton Jan. 18, 19, 1964, Oct. 11, 25, 1966.
REMARKS.--Flow affected by ice Nov. 23-28, Dec. 6, 7, Dec. 11 to Feb. 18.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	460	470	470	390	390	190	400	500	460	420	460	470
2	460	470	480	390	390	210	400	500	460	450	460	470
3	460	470	480	360	390	260	400	430	460	470	390	470
4	460	470	470	360	440	280	410	420	460	480	420	450
5	450	470	470	350	400	280	420	440	460	490	420	480
6	450	470	470	350	370	230	430	440	155	480	390	430
7	450	470	410	340	360	260	450	330	135	480	430	460
8	420	470	400	340	360	290	450	370	240	490	460	460
9	360	470	440	350	370	310	450	380	360	430	470	480
10	320	460	400	350	360	340	450	380	310	430	460	480
11	390	430	390	360	350	270	450	170	400	420	470	480
12	420	450	400	380	350	190	450	390	420	420	470	480
13	450	460	400	380	350	180	450	450	430	420	470	480
14	470	460	420	370	360	150	450	460	245	470	480	480
15	470	480	430	370	400	200	450	460	240	480	480	480
16	480	470	430	380	410	260	450	470	310	500	480	480
17	480	470	440	400	460	300	450	470	420	470	480	460
18	480	470	480	380	200	360	440	235	430	470	480	490
19	480	470	490	380	150	380	440	210	450	470	490	460
20	480	460	420	380	130	380	430	330	450	470	480	460
21	460	450	420	380	170	390	420	410	460	460	480	470
22	465	470	420	370	200	390	420	430	460	460	480	460
23	450	530	450	370	210	405	470	450	470	460	480	540
24	450	510	410	370	220	420	520	460	470	460	475	450
25	450	510	400	370	260	420	530	460	480	460	460	450
26	450	500	400	370	290	430	530	440	480	460	460	450
27	400	500	400	405	220	430	510	460	480	460	460	450
28	400	510	390	410	190	430	500	470	480	460	480	450
29	390	470	390	390	---	400	500	470	470	460	480	450
30	430	490	390	390	---	310	500	460	440	460	470	460
31	470	---	390	390	---	370	---	460	---	460	470	---
MONTH	442	475	427	373	313	313	454	413	400	460	462	468
YEAR	417											

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	7.0	8.0	1.0	0	0	7.0	14.0	20.0	28.0	24.0	24.0
2	21.0	6.0	5.0	1.0	0	0	15.0	16.0	20.0	29.0	24.0	27.0
3	18.0	5.0	7.0	0	0	0	9.0	13.0	21.0	29.0	20.0	20.0
4	19.0	6.0	3.0	0	0	0	10.0	13.0	24.0	27.0	23.0	23.0
5	18.0	6.0	3.0	0	0	1.5	8.0	17.0	30.0	28.0	20.0	25.0
6	19.0	7.0	1.0	0	0	0	8.0	15.0	20.0	25.0	21.0	28.0
7	18.0	6.0	1.0	0	0	1.0	10.0	12.0	21.0	25.0	22.0	24.0
8	11.0	8.0	2.0	0	0	1.0	11.0	15.0	25.0	25.0	23.0	26.0
9	6.0	7.0	2.0	0	0	1.0	11.0	17.0	22.0	27.0	30.0	21.0
10	8.0	7.0	0	0	0	2.0	13.0	15.0	21.0	29.0	32.0	24.0
11	11.0	6.0	0	0	0	2.0	21.0	15.0	22.0	28.0	31.0	28.0
12	10.0	4.0	0	0	0	2.5	16.0	12.0	25.0	28.0	27.0	27.0
13	10.0	5.0	0	0	0	4.0	13.0	15.0	27.0	26.0	30.0	26.0
14	9.0	2.0	0	0	0	4.0	13.0	18.0	21.5	24.0	27.0	23.0
15	8.0	3.0	1.0	0	0	3.0	16.0	19.0	22.0	23.0	25.0	21.0
16	7.0	4.0	0	0	0	3.0	22.0	24.0	26.0	24.0	23.0	15.0
17	8.0	5.0	0	0	0	4.0	16.0	20.0	25.0	31.0	27.0	17.0
18	12.0	6.0	0	0	0	6.0	19.0	15.5	25.0	27.0	24.0	13.0
19	10.0	5.0	0	0	2.0	3.0	19.0	14.0	29.0	22.0	24.0	20.0
20	9.0	4.0	0	0	0	3.0	19.0	15.0	28.0	26.0	24.0	19.0
21	10.0	6.0	0	0	0	6.0	16.0	16.0	24.0	22.0	23.0	20.0
22	11.5	1.0	0	0	0	4.0	16.0	12.0	25.0	23.0	32.0	18.0
23	14.0	0	0	0	0	3.5	13.0	12.0	25.0	24.0	25.0	16.0
24	15.0	0	0	0	0	2.0	15.0	16.0	26.0	25.0	26.5	13.0
25	16.0	1.0	0	0	0	3.0	20.0	12.0	26.0	25.0	22.0	15.0
26	11.0	1.0	1.0	0	0.5	3.0	15.0	13.0	25.0	21.0	21.0	23.0
27	9.0	1.0	1.0	0	1.0	11.0	17.0	15.0	30.0	23.0	25.0	20.0
28	8.0	1.0	0	0	1.0	10.0	10.0	17.0	30.0	20.0	23.0	23.0
29	7.0	2.0	0	0	---	8.0	10.0	22.0	30.0	19.0	22.0	22.0
30	7.0	4.0	1.0	0	---	9.0	13.0	20.0	28.0	18.0	21.0	24.0
31	6.0	---	1.0	0	---	12.0	---	18.0	---	20.0	24.0	---
MONTH	11.5	4.0	1.0	0	0	3.5	14.0	15.5	25.0	25.0	24.5	21.5
YEAR	12.5											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT., 1970					
22...	1035	46	530	--	15.0
NOV.					
25...	1230	40	--	--	3.0
DEC.					
23...	1030	37	600	7.6	.0
JAN., 1971					
27...	1220	19	590	8.4	.0
FEB.					
26...	1440	383	320	8.2	1.0
MAR.					
05...	1350	666	320	7.6	6.0
23...	1125	265	440	8.8	4.0
APR.					
23...	1330	142	380	7.9	13.0
MAY					
20...	1250	697	370	7.9	15.5
JUNE					
23...	0945	160	340	8.9	23.5
JULY					
20...	1500	96	500	7.1	27.5
AUG.					
24...	1120	47	510	8.1	26.0
31...	0905	35	400	7.5	19.5
SEP.					
22...	1235	30	520	7.8	16.0

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	34	15	1.4	51	30	4.1	88	66	16
2	34	28	2.6	51	29	4.0	93	53	13
3	32	38	3.3	52	40	5.6	82	55	12
4	33	28	2.5	52	42	5.9	68	49	9.0
5	33	30	2.7	52	43	6.0	59	30	4.8
6	34	24	2.2	51	55	7.6	50	54	7.3
7	36	26	2.5	50	30	4.1	48	82	11
8	58	83	13	48	30	3.9	62	48	8.0
9	213	583	409	52	40	5.6	67	41	7.4
10	280	860	650	84	87	20	75	62	13
11	166	432	194	87	93	22	48	75	9.7
12	108	198	58	71	43	8.2	50	95	13
13	76	40	8.2	63	39	6.6	70	108	20
14	62	38	6.4	61	30	4.9	85	85	20
15	56	41	6.2	55	33	4.9	85	62	14
16	53	40	5.7	45	55	6.7	65	48	8.4
17	51	22	3.0	51	37	5.1	68	40	7.3
18	50	29	3.9	54	30	4.4	70	51	9.6
19	47	46	5.8	62	34	5.7	45	32	3.9
20	46	34	4.2	70	52	9.8	50	48	6.5
21	46	41	5.1	93	156	39	42	58	6.6
22	46	43	5.3	73	105	21	38	68	7.0
23	54	66	9.6	35	41	3.9	36	93	9.0
24	61	83	14	38	46	4.7	34	105	9.6
25	62	78	13	40	51	5.5	36	113	11
26	57	43	6.6	50	26	3.5	38	118	12
27	87	641	152	65	37	6.5	38	86	8.8
28	169	629	287	74	28	5.6	39	57	6.0
29	104	275	77	80	68	15	39	77	8.1
30	67	110	20	78	71	15	40	82	8.9
31	55	48	7.1	--	--	--	40	47	5.1
TOTAL	2310	--	1981.3	1788	--	264.8	1748	--	306.0

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	40	41	4.4	19	54	2.8	1250	1070	3410
2	38	35	3.6	18	28	1.4	596	550	885
3	30	56	4.5	18	54	2.6	368	250	248
4	25	56	3.8	17	87	4.0	357	500	482
5	20	70	3.8	17	79	3.6	630	1250	2130
6	18	97	4.7	16	47	2.0	706	1250	2380
7	16	63	2.7	16	52	2.2	349	380	358
8	16	61	2.6	15	63	2.6	200	300	162
9	16	80	3.5	13	47	1.6	209	330	186
10	16	100	4.3	12	60	1.9	198	250	134
11	16	100	4.3	12	50	1.6	1090	3750	13400
12	16	62	2.7	13	25	.88	2610	8590	66300
13	16	65	2.8	13	46	1.6	2990	11100	97500
14	16	65	2.8	13	46	1.6	3810	13300	150000
15	16	55	2.4	14	38	1.4	1240	5350	17900
16	16	92	4.0	20	61	3.3	661	1800	3210
17	16	163	7.0	100	77	21	391	815	860
18	16	80	3.5	5000	7850	106000	375	590	597
19	16	62	2.7	15800	5170	218000	371	547	548
20	16	53	2.3	7100	5390	120000	243	360	236
21	17	51	2.3	1410	570	2170	269	400	291
22	18	70	3.4	887	82	196	312	375	316
23	19	43	2.2	547	76	112	272	281	206
24	21	34	1.9	313	90	76	214	110	64
25	24	30	1.9	388	140	147	205	161	89
26	21	33	1.9	425	300	344	211	198	113
27	19	28	1.4	1420	1850	7090	197	185	98
28	18	20	.97	1940	1350	7070	197	225	120
29	20	24	1.3	--	--	--	390	1210	1320
30	25	26	1.8	--	--	--	255	998	687
31	20	41	2.2	--	--	--	227	500	306
TOTAL	617	--	93.67	35576	--	461261.08	21393	--	364736

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	APRIL MEAN DISCHARGE (CFS)	APRIL MEAN CONCENTRATION (MG/L)	APRIL SEDIMENT DISCHARGE (TONS/DAY)	MAY MEAN DISCHARGE (CFS)	MAY MEAN CONCENTRATION (MG/L)	MAY SEDIMENT DISCHARGE (TONS/DAY)	JUNE MEAN DISCHARGE (CFS)	JUNE MEAN CONCENTRATION (MG/L)	JUNE SEDIMENT DISCHARGE (TONS/DAY)
1	237	432	276	108	23	6.7	182	240	118
2	211	362	206	108	24	7.0	170	190	87
3	156	258	109	108	20	5.8	158	150	64
4	149	191	77	102	25	6.9	155	141	59
5	148	176	70	108	25	7.3	146	160	63
6	132	180	64	157	5820	4160	2200	14600	225000
7	127	150	51	287	10800	10800	2090	19300	129000
8	121	152	50	600	11400	24600	678	4750	9310
9	114	123	38	508	7610	12800	547	3320	5360
10	105	101	29	414	3650	6690	456	4680	5760
11	95	85	22	765	20100	49400	368	1800	1790
12	95	67	17	256	1800	1240	311	750	630
13	91	42	10	191	539	278	405	5160	10800
14	38	33	7.8	164	372	165	1200	22000	91900
15	86	34	7.9	147	305	121	608	10100	20400
16	86	31	7.2	128	348	120	317	2250	1930
17	96	37	9.6	113	200	61	265	739	529
18	110	53	16	800	20600	85300	241	564	367
19	105	40	11	1720	28200	141000	235	520	330
20	102	33	9.1	720	6710	16100	211	442	252
21	136	67	25	418	1400	1580	202	388	212
22	183	86	42	325	902	792	175	393	186
23	144	55	21	286	625	483	159	255	109
24	120	44	14	282	580	442	150	143	58
25	108	43	13	308	750	624	145	128	50
26	104	28	7.9	249	730	491	136	122	45
27	111	24	7.2	216	400	233	125	130	44
28	123	13	4.3	196	285	151	114	128	39
29	128	26	9.0	186	275	138	106	133	38
30	113	22	6.7	177	225	108	153	378	156
31	--	--	--	178	225	108	--	--	--
TOTAL	3724	--	1237.7	10325	--	358018.7	12408	--	504686

DAY	JULY MEAN DISCHARGE (CFS)	JULY MEAN CONCENTRATION (MG/L)	JULY SEDIMENT DISCHARGE (TONS/DAY)	AUGUST MEAN DISCHARGE (CFS)	AUGUST MEAN CONCENTRATION (MG/L)	AUGUST SEDIMENT DISCHARGE (TONS/DAY)	SEPTEMBER MEAN DISCHARGE (CFS)	SEPTEMBER MEAN CONCENTRATION (MG/L)	SEPTEMBER SEDIMENT DISCHARGE (TONS/DAY)
1	202	533	291	66	20	3.6	35	16	1.5
2	155	370	155	71	34	7.1	34	20	1.8
3	125	205	69	98	312	83	33	31	2.8
4	119	157	50	112	87	26	49	52	6.9
5	119	101	32	109	59	17	60	65	11
6	120	100	32	145	88	34	54	41	6.0
7	114	80	25	92	35	8.7	39	22	2.3
8	109	67	20	79	32	6.8	30	24	1.9
9	142	265	102	74	32	6.4	28	22	1.7
10	180	428	208	71	42	8.1	28	25	1.9
11	190	282	145	62	102	17	28	31	2.3
12	212	305	175	58	55	8.6	26	33	2.3
13	146	255	101	57	49	7.5	26	28	2.0
14	129	157	55	54	44	6.4	24	32	2.1
15	116	108	34	56	28	4.2	25	22	1.5
16	112	65	20	56	24	3.6	25	21	1.4
17	106	40	11	52	24	3.4	26	20	1.4
18	99	34	9.1	49	25	3.3	29	18	1.4
19	95	32	8.2	49	22	2.9	32	16	1.4
20	94	37	9.4	55	26	3.9	34	14	1.3
21	93	42	11	53	29	4.1	31	15	1.3
22	91	53	13	46	26	3.2	31	12	1.0
23	90	55	13	42	23	2.6	33	11	.98
24	89	37	8.9	44	28	3.3	31	12	1.0
25	96	31	8.0	52	28	3.9	39	25	2.6
26	75	28	5.7	48	26	3.4	42	21	2.4
27	70	28	5.3	39	25	2.6	40	23	2.5
28	70	26	4.9	36	21	2.0	40	17	1.8
29	71	26	5.0	34	20	1.8	35	23	2.2
30	69	20	3.7	35	20	1.9	27	21	1.5
31	68	19	3.5	35	17	1.6	--	--	--
TOTAL	3566	--	1633.7	1929	--	291.9	1014	--	72.18

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 96398
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 1694583.03

06809500 EAST NISHNABOTNA RIVER AT RED OAK, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM
FEB.										
18...	1030	.0	3160	6130	52300	22	27	32	42	62
18...	1800	.0	9440	8350	213000	22	25	31	42	65
MAR.										
12...	1000	2.0	3610	9310	90700	23	29	36	49	82
13...	1245	4.0	3360	12100	110000	22	30	36	48	72
14...	1245	4.0	3460	13900	130000	27	35	44	60	84
MAY										
07...	0730	12.0	172	6680	3100	54	63	75	87	97
11...	0800	15.0	885	25400	60700	39	52	62	77	91
18...	1900	15.0	2120	38200	219000	35	45	55	68	79
27...	0800	14.5	223	--	--	--	--	--	--	--
JUNE										
06...	2245	20.0	4700	33700	428000	35	44	55	69	87
14...	1700	22.0	1670	31500	142000	38	55	60	84	95

DATE	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	METHOD OF ANALYSIS
FEB.											
18...	85	90	99	100	--	--	--	--	--	--	VPWC
18...	81	86	96	100	--	--	--	--	--	--	VPWC
MAR.											
12...	95	97	100	--	--	--	--	--	--	--	VPWC
13...	86	88	98	100	--	--	--	--	--	--	VPWC
14...	96	97	99	100	--	--	--	--	--	--	VPWC
MAY											
07...	99	100	--	--	--	--	--	--	--	--	SPWC
11...	99	100	--	--	--	--	--	--	--	--	VPWC
18...	99	99	100	--	--	--	--	--	--	--	VPWC
27...	--	--	--	--	13	81	94	98	99	100	SV
JUNE											
06...	98	98	100	--	--	--	--	--	--	--	VPWC
14...	99	99	100	--	--	--	--	--	--	--	VPWC

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

06818750 PLATTE RIVER NEAR DIAGONAL, IOWA

LOCATION.--Lat 40°46'02", long 94°24'46", in NE1/4 NW1/4 sec.22, T.69 N., R.31 W., Ringgold County, at downstream side of bridge on county highway, at gaging station, 2.2 miles upstream from Turkey Creek, 4.6 miles southwest of Diagonal, and 4.9 miles downstream from Gard Creek.
DRAINAGE AREA.--217 sq mi.
PERIOD OF RECORD.--Chemical analyses: February 1969 to current year.
REMARKS.--Samples for chemical analysis are collected periodically.
COOPERATION.--Laboratory analysis of chemical constituents furnished by State Hygienic Laboratory, Des Moines, Iowa.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)
AUG. 10...	4.0	13	80	380	51	12	24	5.3	163	14	158	56

DATE	CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
AUG. 10...	16	.4	.4	291	.40	3.14	176	22	.8	440	8.4	28.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)
NOV., 1970						
04...	1400	48	460	8.5	7.5	9.8
DEC.						
08...	1520	42	--	--	6.0	14.4
JAN., 1971						
20...	1140	14	520	7.2	.0	7.5
MAR.						
03...	0730	62	225	7.8	2.5	15.2
APR.						
14...	1130	20	465	8.4	19.0	14.5
MAY						
24...	1330	6090	110	8.3	15.0	10.7
AUG.						
18...	1315	3.2	425	7.7	35.0	9.8
24...	1105	3.4	520	7.6	24.0	--

06818750 PLATTE RIVER NEAR DIAGONAL, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
JAN.							
20...	1300	.0	14	14	.50	--	--
MAR.							
03...	0800	2.5	62	78	13	--	--
APR.							
14...	1230	19.0	20	16	.90	--	--
MAY							
24...	1600	15.0	6090	3520	57900	67	72
AUG.							
10...	1325	28.0	4.0	--	--	--	--
18...	1415	35.0	3.2	13	.10	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	METHOD OF ANALYSIS
JAN.						
20...	--	--	--	--	--	--
MAR.						
03...	--	--	--	--	--	--
APR.						
14...	--	--	--	--	--	--
MAY						
24...	87	89	95	99	100	SPWC
AUG.						
10...	--	--	--	--	--	--
18...	--	--	--	--	--	--

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

06897950 ELK CREEK NEAR DECATUR CITY, IOWA
(Hydrologic bench-mark station)

LOCATION.--Lat 40°43'18", long 93°56'19", near the southeast corner sec.34, T.69 N., R.27 W., Decatur County, at gaging station, 700 ft downstream from West Elk Creek, 5.2 miles upstream from mouth, and 5.7 miles southwest of Decatur City.
DRAINAGE AREA.--52.5 sq mi.
PERIOD OF RECORD.--Chemical analyses: February 1968 to current year.
Water temperatures: November 1967 to current year (partial-record station).
Sediment records: November 1967 to current year (partial-record station).
REMARKS.--Miscellaneous biological data collected since September 1970 and are available in the District office.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PERCENT SATURATION	BIOCHEMICAL OXYGEN DEMAND (MG/L)	COLIFORM (COLONIES PER 100 ML)
OCT.									
01...	0820	5.2	600	7.8	13.0	--	--	--	--
21...	0910	5.3	570	8.0	9.5	10.8	98	2.6	950
NOV.									
05...	1015	9.3	500	8.4	4.5	10.0	80	.6	520
DEC.									
09...	0840	8.6	480	8.1	.0	15.8	116	3.4	3700
JAN.									
20...	1010	4.7	520	7.4	.0	7.2	50	3.0	300
MAR.									
03...	0945	20	--	--	.0	14.6	100	6.2	--
APR.									
15...	0730	3.8	600	8.2	9.0	12.2	107	4.8	460
MAY									
04...	0830	--	--	--	10.0	11.0	97	--	--
04...	1400	4.4	600	8.4	20.5	11.4	125	3.6	440
25...	1610	5.4	520	8.4	17.0	10.6	110	--	2300
JULY									
08...	1400	.30	450	8.3	35.0	9.4	73	7.8	--

DATE	SILICA (SIO2) (MG/L)	IRON (FE) (UG/L)	MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)	CHLORIDE (CL) (MG/L)
OCT.												
21...	13	50	320	84	20	12	4.4	290	0	238	64	7.0
NOV.												
05...	17	190	310	82	20	12	3.5	280	0	230	67	6.0
DEC.												
09...	10	100	180	74	16	12	2.4	252	0	207	62	7.0
JAN.												
20...	15	230	1500	100	22	15	2.8	336	0	276	82	9.0
MAR.												
03...	13	270	330	75	17	10	3.9	244	0	200	64	10
APR.												
15...	5.4	50	350	86	18	13	3.4	298	0	244	69	6.0
MAY												
25...	11	330	180	79	16	12	3.7	266	0	218	61	8.0
JULY												
08...	7.7	280	1100	69	19	13	4.7	291	0	239	33	7.0

06897950 ELK CREEK NEAR DECATUR CITY, IOWA--CONTINUED

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	TOTAL PHOS-PHORUS (PO4) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	COLOR (PLAT-INUM-COBALT UNITS)
OCT.												
21...	.3	.1	.07	343	348	.47	4.91	292	54	8	.3	10
NOV.												
05...	.2	1.1	.25	349	348	.47	8.76	290	57	8	.3	10
DEC.												
09...	.6	.0	.03	318	308	.43	7.38	250	44	9	.3	5
JAN.												
20...	.4	2.1	.07	415	415	.56	5.27	340	64	9	.4	5
MAR.												
03...	.2	4.1	.07	318	318	.43	17.2	260	60	8	.3	10
APR.												
15...	.0	.2	.10	358	348	.49	3.67	290	46	9	.3	5
MAY												
25...	.0	3.5	.07	318	326	.43	4.64	260	42	9	.3	10
JULY												
08...	.3	1.8	.03	301	300	.41	.24	250	12	10	.4	8

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)
OCT.								
01...	0	0	0	0	0	.2	4	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1969 TO SEPTEMBER 1970

DATE	TOTAL FILT-RABLE RESIDUE (MG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)
MAY					
06...	360	150	1.2	9.5	2.2
AUG.					
20...	240	5.8	3.9	9.2	4.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMP-ERATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
OCT.					
01...	0820	13.0	5.2	--	--
21...	0910	9.5	5.3	44	.60
NOV.					
05...	1030	4.5	9.3	41	1.0
DEC.					
09...	0840	.0	8.6	55	1.3
JAN.					
20...	1005	.0	4.7	103	1.3
20...	1010	--	4.7	--	--
MAR.					
03...	0945	.0	20	48	2.6
APR.					
15...	0730	--	3.8	--	--
15...	0800	11.0	3.8	16	.20
MAY					
25...	1610	--	5.4	--	--
25...	1625	17.0	5.4	77	1.1
JULY					
08...	1400	35.0	.30	--	--

06898000 THOMPSON RIVER AT DAVIS CITY, IOWA

LOCATION.--Lat 40°38'25", long 93°48'29", in SE1/4 SE1/4 sec.35, T.68 N., R.26 W., Decatur County, 40 ft upstream from gaging station, on upstream side of bridge on U.S. Highway 69 at Davis City, 2.6 miles upstream from Dickersons Branch, and 5.2 miles upstream from Iowa-Missouri State line.
DRAINAGE AREA.--701 sq mi.
PERIOD OF RECORD.--Chemical analysis:October 1967 to current year.
Water temperatures: April 1968 to current year.
Sediment records: April 1968 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 600 micromhos Feb. 9; minimum daily, 150 micromhos Feb. 20,22.
Water temperatures: Maximum, 30.0° C July 20, Aug. 13; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 10,100 mg/l March 15; minimum daily, 18 mg/l Feb. 14.
Sediment loads: Maximum daily, 55,500 tons May 8; minimum daily, 0.66 ton Sept. 2.

Period of record: Specific conductance: Maximum daily, 750 micromhos Nov. 14, 15, 1968; minimum daily, 150 micromhos Sept. 16, 1970, Feb. 20, 22, 1971.
Water temperatures: Maximum daily, 32.0°C July 23, 1968, July 13, 1969, July 1, 1970; freezing point during winter months each year.
Sediment concentrations: Maximum daily, 27,000 mg/l Feb. 26, 1969; minimum daily, 5 mg/l Feb. 4, 1969.
Sediment loads: Maximum daily, 234,000 tons July 19, 1969; minimum daily, 0.24 ton Dec. 4, 1968.
REMARKS.--Samples for chemical analysis are collected periodically. Flow affected by ice Nov. 23-25, Dec. 20 to Feb. 23.
COOPERATION.--Laboratory analysis of chemical constituents furnished by State Hygienic Lab. Des Moines, Iowa.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	420	440	410	390	500	180	370	420	410	460	340	390
2	450	410	410	360	410	350	340	---	---	440	340	390
3	430	370	430	---	400	230	360	380	410	410	---	430
4	390	445	450	---	490	290	---	390	410	---	---	430
5	390	380	410	---	400	350	360	380	350	410	---	250
6	360	360	410	---	480	360	360	280	350	420	280	250
7	360	360	400	---	---	---	380	260	370	---	380	230
8	450	360	455	---	350	340	380	220	370	---	370	280
9	240	430	350	370	600	360	360	190	370	350	370	290
10	200	210	300	---	450	380	360	260	410	---	390	320
11	260	190	280	---	---	290	360	330	420	---	390	360
12	310	190	350	---	460	200	360	390	410	380	390	350
13	370	360	350	---	360	250	370	400	390	380	390	350
14	410	410	350	---	---	220	440	420	---	370	390	380
15	430	430	400	---	---	200	320	440	390	370	390	380
16	450	430	400	480	530	230	320	---	380	360	370	410
17	430	440	330	---	460	330	320	450	410	360	370	410
18	400	420	360	480	220	390	---	450	390	360	405	410
19	---	420	350	---	180	390	320	420	390	350	330	400
20	410	410	390	390	150	410	380	350	390	350	330	420
21	380	320	420	420	190	---	390	280	---	290	310	370
22	430	320	440	400	150	410	390	300	---	340	310	420
23	420	320	420	370	160	410	390	360	390	340	190	420
24	390	420	420	---	220	410	390	410	390	340	250	420
25	340	450	---	530	270	370	400	180	400	340	290	420
26	380	420	400	370	200	370	390	230	---	360	290	420
27	290	410	390	370	160	370	380	290	---	360	260	420
28	400	410	460	380	---	370	390	370	420	360	350	---
29	460	410	430	380	---	350	370	400	410	360	350	420
30	420	410	420	400	---	350	400	380	460	360	350	420
31	430	---	460	---	---	370	---	380	---	340	390	---
MONTH	383	379	395	---	339	329	370	345	395	368	345	374
YEAR	368											

06898000 THOMPSON RIVER AT DAVIS CITY, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	9.0	9.5	0	0	2.0	9.0	15.5	25.0	26.5	24.0	28.0
2	26.5	10.0	10.0	2.0	1.0	2.0	11.0	---	---	24.5	23.5	29.5
3	15.5	9.0	10.0	---	1.5	2.0	12.0	18.5	23.5	24.5	---	28.0
4	15.5	8.0	8.0	---	1.5	4.0	---	19.0	26.5	---	---	24.5
5	23.5	10.0	4.5	---	0.5	4.5	10.5	20.0	24.5	22.0	---	21.5
6	19.5	13.0	4.5	---	1.0	4.5	14.5	12.0	27.0	27.0	25.0	24.5
7	19.0	10.0	4.5	---	---	---	15.5	14.5	26.0	---	24.5	29.5
8	14.5	10.0	5.0	---	0	4.5	18.5	18.0	23.5	21.0	23.5	29.0
9	11.0	9.5	3.5	1.0	0	2.0	16.5	18.0	24.5	26.5	24.5	26.5
10	10.5	11.0	3.0	---	0	6.5	15.5	17.0	25.5	---	26.5	28.0
11	12.0	9.5	4.5	---	1.0	6.5	15.5	18.0	23.5	---	27.0	26.5
12	14.5	10.0	3.5	---	0	5.5	21.0	18.0	26.0	26.5	26.5	28.0
13	10.0	9.5	9.5	---	0	9.5	16.0	19.0	23.5	26.5	30.0	25.5
14	14.5	5.5	3.0	---	---	9.5	16.0	24.0	---	26.0	29.5	25.5
15	13.5	5.5	4.5	---	2.0	5.5	20.0	24.0	24.0	29.5	24.0	21.0
16	13.0	5.0	4.5	0	4.5	6.5	19.0	---	27.0	29.5	27.0	20.0
17	14.5	7.0	3.5	---	1.5	7.0	20.0	25.5	24.5	29.5	23.5	19.0
18	14.5	6.5	3.5	0.5	4.5	10.0	---	21.0	21.0	29.5	25.0	12.0
19	---	6.5	3.5	0	5.0	6.5	23.0	19.0	21.0	23.5	29.5	13.5
20	15.0	6.5	2.0	3.5	2.0	9.0	18.5	20.5	26.5	30.0	25.5	19.0
21	15.5	8.0	3.5	3.5	2.0	---	18.5	18.0	---	29.0	24.5	19.0
22	15.5	4.5	0	3.0	1.0	6.5	18.0	20.5	---	29.5	26.5	17.5
23	15.5	0	0	1.5	2.0	7.0	18.5	16.5	26.5	29.5	23.5	20.5
24	15.5	0	0	---	3.5	4.5	19.0	16.0	26.5	26.0	28.0	15.5
25	18.5	4.5	---	2.0	3.5	5.0	18.0	19.5	27.0	26.5	29.5	16.5
26	15.5	4.0	1.0	0	2.0	5.0	20.0	15.5	---	26.5	22.0	24.5
27	13.0	3.5	1.5	0	2.0	10.5	15.5	18.0	---	28.0	26.5	25.5
28	10.0	4.5	3.5	1.0	---	10.0	15.0	18.5	26.5	28.5	22.0	---
29	10.0	7.0	1.0	4.0	---	6.5	15.5	20.0	28.0	21.5	26.5	26.5
30	10.0	10.0	3.5	0	---	19.0	18.0	21.0	25.5	19.0	26.5	26.5
31	10.0	---	0	---	---	15.0	---	25.5	---	19.0	27.0	---
MONTH	15.0	7.0	4.0	---	1.5	7.0	16.5	19.0	25.0	26.0	26.0	23.0
YEAR	14.5											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)
AUG. 10...	20	5.9	80	90	69	15	14	4.6	249	0	204	41

DATE	CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
AUG. 10...	8.0	.3	.4	302	.41	16.3	232	11	.4	480	8.0	26.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)
NOV., 1970						
04...	1030	140	530	8.7	6.5	9.1
DEC.						
08...	1330	109	560	7.8	4.5	13.8
MAR., 1971						
02...	1420	964	350	7.8	2.0	14.6
APR.						
14...	0830	85	560	8.3	14.0	12.4
MAY						
25...	1000	2640	170	7.8	15.0	10.5
AUG.						
18...	1010	7.5	440	7.9	26.0	7.6
SEP.						
21...	0840	7.2	320	8.6	13.0	--

06898000 THOMPSON RIVER AT DAVIS CITY, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCTOBER MEAN DISCHARGE (CFS)	OCTOBER MEAN CONCEN-TRATION (MG/L)	OCTOBER SEDIMENT DISCHARGE (TONS/DAY)	NOVEMBER MEAN DISCHARGE (CFS)	NOVEMBER MEAN CONCEN-TRATION (MG/L)	NOVEMBER SEDIMENT DISCHARGE (TONS/DAY)	DECEMBER MEAN DISCHARGE (CFS)	DECEMBER MEAN CONCEN-TRATION (MG/L)	DECEMBER SEDIMENT DISCHARGE (TONS/DAY)
1	87	62	15	163	88	39	242	97	63
2	72	45	8.7	144	58	23	239	79	51
3	60	34	5.5	140	37	14	217	82	48
4	51	35	4.8	139	43	16	179	65	31
5	44	43	5.1	137	48	18	157	35	15
6	42	54	6.1	131	53	19	131	43	15
7	42	62	7.0	122	65	21	106	40	11
8	118	421	375	117	67	21	104	42	12
9	1670	7260	35100	521	525	1580	146	38	15
10	1710	2720	14500	2340	4320	27300	235	610	843
11	581	600	941	2240	2900	18100	734	2040	4340
12	317	323	276	725	1200	2350	460	680	845
13	231	172	107	476	455	585	250	280	189
14	176	105	50	395	280	299	225	158	96
15	140	58	22	330	190	169	252	107	73
16	114	30	9.2	287	240	186	397	202	217
17	98	27	7.1	262	665	470	601	410	665
18	91	44	11	251	520	352	651	420	738
19	87	47	11	246	230	153	487	280	368
20	84	28	6.4	522	414	675	200	240	130
21	79	42	9.0	857	1100	2550	230	290	180
22	97	105	27	512	760	1050	220	640	380
23	290	480	376	280	360	272	210	240	136
24	626	810	1370	120	260	84	170	215	99
25	542	640	937	150	103	42	150	325	132
26	437	565	898	245	75	50	130	360	126
27	932	2170	5840	227	98	60	100	345	93
28	344	645	660	220	102	61	84	910	206
29	315	156	133	221	85	51	56	820	124
30	251	132	89	231	70	44	50	980	132
31	195	112	59	--	--	--	50	1360	184
TOTAL	9923	--	61865.9	12751	--	56654	7463	--	10557

DAY	JANUARY MEAN DISCHARGE (CFS)	JANUARY MEAN CONCEN-TRATION (MG/L)	JANUARY SEDIMENT DISCHARGE (TONS/DAY)	FEBRUARY MEAN DISCHARGE (CFS)	FEBRUARY MEAN CONCEN-TRATION (MG/L)	FEBRUARY SEDIMENT DISCHARGE (TONS/DAY)	MARCH MEAN DISCHARGE (CFS)	MARCH MEAN CONCEN-TRATION (MG/L)	MARCH SEDIMENT DISCHARGE (TONS/DAY)
1	52	440	62	82	138	31	1620	1640	7170
2	54	100	15	84	105	24	1100	750	2230
3	52	89	12	84	82	19	714	520	1000
4	45	95	12	85	98	22	567	280	429
5	60	90	15	86	100	23	564	330	503
6	56	77	12	80	98	21	584	370	583
7	50	65	8.8	76	72	15	487	330	434
8	50	55	7.4	72	49	9.5	423	250	286
9	54	57	8.3	70	180	34	381	220	226
10	54	45	6.6	70	339	64	367	180	178
11	54	44	6.4	72	177	34	877	1550	3670
12	52	43	6.0	72	52	10	1270	1930	6620
13	52	42	5.9	72	23	4.5	1520	4200	17200
14	52	39	5.5	72	18	3.5	1680	4900	22200
15	50	37	5.0	72	340	66	1710	10100	46600
16	52	31	4.4	72	230	45	1130	3290	10900
17	54	37	5.4	200	190	103	610	1300	2140
18	56	53	8.0	2000	1980	10700	441	660	786
19	59	79	13	3200	2200	19000	416	450	505
20	62	130	22	5000	1050	14200	387	335	350
21	58	138	22	3800	900	9230	340	240	220
22	58	138	22	3000	1030	8340	316	210	179
23	58	114	18	1600	980	4230	307	210	174
24	62	103	17	985	680	1810	251	187	127
25	67	150	27	723	500	976	218	158	93
26	72	172	33	1740	2800	13200	212	135	77
27	60	104	17	2750	3820	28400	214	133	77
28	63	160	27	2220	3120	18700	214	118	68
29	76	116	24	--	--	--	209	95	54
30	80	166	36	--	--	--	205	100	55
31	80	147	32	--	--	--	194	100	52
TOTAL	1804	--	515.7	28439	--	129314.5	19528	--	125186

06898000 THOMPSON RIVER AT DAVIS CITY, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	175	90	43	132	104	37	221	212	127
2	159	87	37	107	84	24	201	190	103
3	145	75	29	96	84	22	183	168	83
4	132	62	22	91	82	20	165	141	63
5	119	62	20	88	80	19	149	122	49
6	114	52	16	708	7250	21200	139	88	33
7	110	60	18	470	6420	9530	129	103	36
8	108	47	14	2620	7970	55500	127	54	19
9	104	34	9.5	2650	3700	26500	166	160	72
10	96	33	8.6	1670	4000	18000	190	355	182
11	90	31	7.5	730	2120	4180	140	196	74
12	89	26	6.2	534	986	1420	130	166	65
13	87	24	5.6	411	2000	2220	120	168	54
14	84	27	6.1	331	1000	894	112	160	48
15	79	50	11	278	310	233	106	161	46
16	80	43	9.3	238	250	161	126	155	53
17	81	44	9.6	207	200	112	110	146	43
18	89	47	11	222	430	258	94	121	31
19	95	45	12	261	750	529	82	88	19
20	92	75	19	701	2670	6240	73	153	30
21	132	80	29	702	2720	5600	74	145	29
22	199	60	32	358	1210	1170	69	122	23
23	163	57	25	275	720	535	60	118	19
24	119	43	14	304	400	328	54	136	20
25	93	42	11	2480	3370	24600	50	116	16
26	77	50	10	1970	3690	24000	48	111	14
27	209	841	543	638	2100	3620	44	129	15
28	365	1000	986	419	900	1020	41	144	16
29	274	635	470	330	480	428	38	127	13
30	182	250	123	276	265	197	46	173	21
31	--	--	--	246	233	155	--	--	--
TOTAL	3941	--	2557.4	20543	--	208752	3287	--	1416

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	57	136	21	11	110	3.3	6.4	57	.98
2	74	140	28	10	100	2.7	6.1	40	.66
3	85	160	37	12	92	3.0	6.0	50	.81
4	64	116	20	11	85	2.5	13	195	6.8
5	46	83	10	13	79	2.8	46	515	64
6	38	78	8.0	15	92	3.7	82	1180	261
7	36	83	8.1	21	72	4.1	58	640	100
8	35	87	8.2	20	70	3.8	44	310	37
9	50	108	15	18	65	3.2	20	229	12
10	51	102	14	15	68	2.8	14	162	6.1
11	51	86	12	13	61	2.1	12	144	4.7
12	67	92	17	11	51	1.5	11	137	4.1
13	59	92	15	9.9	47	1.3	10	102	2.8
14	47	108	14	9.4	47	1.2	8.8	86	2.0
15	38	84	8.6	8.6	50	1.2	7.8	75	1.6
16	31	94	7.9	8.2	46	1.0	6.7	68	1.2
17	28	124	9.4	7.8	59	1.2	6.4	68	1.2
18	28	122	9.2	7.5	66	1.3	7.7	80	1.7
19	27	124	9.0	7.0	101	1.9	8.5	78	1.8
20	21	116	6.6	7.5	138	2.8	7.9	65	1.4
21	18	108	5.2	9.8	150	4.0	7.4	75	1.5
22	17	100	4.6	63	940	160	6.8	72	1.3
23	16	97	4.2	111	1380	414	6.1	83	1.4
24	16	112	4.8	38	555	57	5.5	93	1.4
25	18	125	6.1	16	210	9.1	6.3	80	1.4
26	15	134	5.4	12	178	5.8	6.0	86	1.4
27	13	122	4.3	9.3	118	3.0	5.5	84	1.2
28	13	121	4.2	8.2	90	2.0	4.9	72	.95
29	12	118	3.8	7.6	60	1.2	4.9	58	.77
30	12	117	3.8	7.2	52	1.0	4.4	73	.87
31	11	119	3.5	6.7	51	.92	--	--	--
TOTAL	1094	--	327.9	524.7	--	705.42	440.1	--	524.04

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 109737.8
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 598775.86

06898000 THOMPSON RIVER AT DAVIS CITY, IOWA--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
DEC.							
11...	1700	4.5	525	1530	2170	60	63
MAR.							
15...	1700	5.5	1710	2760	12700	46	48
MAY							
06...	1800	12.0	1200	12700	41100	47	54
08...	1200	18.0	3280	8480	75100	40	46
20...	1700	20.5	1100	3940	11700	36	42
25...	1420	15.0	2750	6180	45900	46	55
26...	1500	15.5	1840	2840	14100	46	55

DATE	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	METHOD OF ANALYSIS
DEC.							
11...	70	91	95	99	100	--	SPWC
MAR.							
15...	56	72	88	97	100	--	SPWC
MAY							
06...	66	82	97	100	--	--	VPWC
08...	53	68	86	94	97	100	VPWC
20...	48	62	86	97	100	--	SPWC
25...	64	74	88	98	100	--	SPWC
26...	58	68	80	94	97	100	VPWC

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

06898400 WELDON RIVER NEAR LEON, IOWA

LOCATION.--Lat 40°41'45", long 93°38'07", in NE1/4 NE1/4 sec.17, T.68 N., R.24 W., Decatur County, at downstream side of bridge on county highway A, 10 ft upstream from gaging station, 200 ft upstream from unnamed creek, 1.3 miles downstream from Brush Creek, and 6.5 miles southeast of Post Office in Leon.
DRAINAGE AREA.--104 sq mi.
PERIOD OF RECORD.--Chemical analyses: February 1968 to current year.
REMARKS.--Samples for chemical analysis are collected periodically.
COOPERATION.--Laboratory analysis of chemical constituents furnished by State Hygienic Laboratory, Des Moines, Iowa.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	DIS-CHARGE (CFS)	SILICA (SIO2) (MG/L)	IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DIS-SOLVED CALCIUM (CA) (MG/L)	DIS-SOLVED MAGNESIUM (MG) (MG/L)	SODIUM (NA) (MG/L)	POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SULFATE (SO4) (MG/L)
AUG. 10...	.05	13	50	340	62	16	18	5.6	249	0	204	49

DATE	CHLORIDE (CL) (MG/L)	DIS-SOLVED FLUORIDE (F) (MG/L)	NITRATE (NO3) (MG/L)	DIS-SOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
AUG. 10...	5.0	.2	.4	307	.42	.04	224	15	.5	470	8.2	28.0

DATE	TIME	DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)
NOV., 1970						
04...	0940	21	600	8.1	5.0	11.3
DEC.						
08...	1255	9.4	610	7.8	5.0	12.8
JAN., 1971						
19...	1430	4.5	740	7.3	.0	--
MAR.						
02...	1345	58	520	7.7	5.0	13.0
APR.						
14...	0750	6.0	600	8.2	7.0	12.6
MAY						
25...	0910	20	510	8.2	12.0	9.8
AUG.						
18...	0900	.13	475	7.5	18.0	7.8
SEP.						
20...	1340	.12	520	8.5	19.0	--

06903400 CHARITON RIVER NEAR CHARITON, IOWA

LOCATION.--Lat 40°57'12", long 93°15'37", in SW1/4 NE1/4 sec.15, T.71 N., R.21 W., Lucas County, near center of span on downstream side of bridge on county highway S43, 15 ft upstream from gaging station, 0.4 mile downstream from Wolf Creek and 5.0 miles southeast of Chariton.
DRAINAGE AREA.--182 sq mi.
PERIOD OF RECORD.--Specific conductance: October 1969 to current year.
Water temperatures: October 1969 to current year.
Sediment records: October 1969 to current year.
EXTREMES.--Current year: Specific conductance: Maximum daily, 740 micromhos Jan. 20; minimum daily, 110 micromhos Feb. 27.
Water temperatures: Maximum, 25.0°C June 28-30; freezing point on many days during winter months.
Sediment concentrations: Maximum daily, 3,780 mg/l May 19; minimum daily, 11 mg/l Jan. 23, Feb. 8, 14.
Sediment loads: Maximum daily, 2,420 tons May 19; minimum daily, 0.11 ton Feb. 8, 14.

Period of record: Specific conductance: Maximum daily, 780 micromhos Jan. 11, 12, 1970; minimum daily, 110 micromhos Feb. 27, 1971.
Water temperatures: Maximum, 27.0°C June 9, 1970; freezing point on many days during winter months each year.
Sediment concentrations: Maximum daily, 3,780 mg/l May 19, 1971; minimum daily, 3 mg/l Dec. 17, 1969.
Sediment loads: Maximum daily, 21,600 tons Aug. 8, 1970; minimum daily, 0.06 ton July 14, 1970.
REMARKS.--Flow affected by ice Nov. 24, Dec. 13-15, 19-22, Jan. 3 to Mar. 4.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	400	440	470	---	700	130	460	510	400	560	---	470
2	360	440	---	---	---	175	470	---	420	500	230	470
3	420	450	---	---	620	210	470	480	410	550	230	480
4	360	440	---	---	---	230	---	460	380	---	270	490
5	420	440	---	---	---	270	470	460	380	460	320	500
6	280	460	---	---	630	290	470	450	---	530	310	420
7	420	460	---	---	---	---	490	490	420	550	280	510
8	380	480	575	---	620	340	490	500	490	460	---	420
9	380	480	---	---	620	---	490	---	500	550	290	320
10	370	460	---	---	---	360	500	470	490	460	320	290
11	400	420	---	---	---	---	---	360	520	---	330	290
12	380	440	---	---	---	200	500	390	490	560	350	---
13	380	440	---	---	620	210	460	390	---	580	350	320
14	380	440	---	---	---	---	480	390	530	500	350	350
15	380	440	---	---	720	235	530	430	530	500	---	350
16	380	440	---	---	---	260	530	---	510	500	350	350
17	---	440	---	---	610	280	550	450	---	510	350	350
18	---	450	---	---	225	320	---	470	480	---	380	350
19	---	450	---	---	125	350	530	245	550	550	380	---
20	300	450	---	740	145	350	560	300	---	550	380	350
21	300	450	---	---	140	---	550	270	550	620	380	330
22	300	450	---	---	130	370	540	280	550	620	---	330
23	300	450	---	660	140	390	540	---	550	640	410	350
24	290	450	---	---	210	400	540	350	550	300	430	350
25	290	450	---	670	240	430	---	290	540	---	440	360
26	290	470	---	---	180	430	550	340	540	145	440	---
27	470	470	---	530	110	430	530	420	---	130	440	360
28	480	470	---	---	---	---	520	340	540	190	470	380
29	440	470	---	---	---	430	520	390	540	190	---	380
30	430	470	---	620	---	460	520	---	540	190	470	380
31	440	---	---	---	---	460	---	420	---	220	470	---
MONTH	372	452	---	---	---	320	510	398	496	449	362	381
YEAR	418											

NOTE: NUMBER OF MISSING DAYS OF RECORD EXCEEDED 20% OF YEAR

06903400 CHARITON RIVER NEAR CHARITON, IOWA--CONTINUED

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	9.0	6.0	---	---	---	---	11.0	20.0	22.0	---	20.0
2	15.0	7.0	---	---	---	3.0	---	---	20.0	21.0	20.0	21.0
3	15.0	6.5	---	---	---	---	---	10.0	19.0	21.0	21.0	22.0
4	16.0	6.0	---	---	---	---	---	12.0	20.0	---	20.0	22.0
5	15.0	6.0	---	---	---	---	---	12.0	22.0	21.0	19.0	21.0
6	14.0	6.0	---	---	---	---	---	15.0	---	21.0	19.0	21.0
7	16.0	5.0	---	---	---	---	---	13.0	22.0	23.0	20.0	21.0
8	15.0	5.0	7.0	---	---	---	---	11.0	21.0	24.0	---	23.0
9	14.0	5.0	---	---	---	---	---	---	21.0	24.0	21.0	23.0
10	13.0	5.0	---	---	---	---	---	16.0	21.0	22.0	22.0	21.0
11	12.0	5.0	---	---	---	---	---	16.0	22.0	---	21.0	20.0
12	11.0	5.0	---	---	---	---	---	13.0	23.0	22.0	20.0	---
13	11.0	5.0	---	---	---	---	16.5	12.0	---	24.0	21.0	18.0
14	11.0	4.0	---	---	---	---	---	16.0	23.0	24.0	22.0	18.0
15	11.0	4.0	---	---	---	---	---	18.0	22.0	21.0	---	17.0
16	10.0	4.0	---	---	---	---	---	---	22.0	22.0	23.0	15.0
17	---	4.0	---	---	---	---	16.0	19.0	---	23.0	22.5	15.0
18	---	4.0	---	---	---	---	---	20.0	23.0	---	20.0	14.0
19	---	4.0	---	---	---	---	16.0	14.0	24.0	22.0	21.0	---
20	13.0	3.0	---	0	---	---	18.0	14.0	---	21.0	22.0	10.0
21	14.0	3.0	---	---	---	---	16.0	16.0	23.0	21.0	22.0	12.0
22	14.0	3.0	---	---	---	---	14.0	16.0	23.0	22.0	---	12.0
23	15.0	2.0	---	---	---	---	14.0	---	23.0	23.0	22.0	12.0
24	15.0	0	---	---	---	---	14.0	17.0	23.0	22.5	23.0	12.0
25	14.0	0	---	---	---	---	---	14.0	24.0	---	21.0	17.0
26	14.0	2.0	---	---	---	---	14.0	13.0	24.0	23.0	20.0	---
27	10.0	4.0	---	---	---	---	12.0	12.0	---	20.0	18.0	17.0
28	10.0	5.0	---	---	---	---	11.0	13.0	25.0	20.0	18.0	18.0
29	10.0	5.0	---	---	---	---	10.0	15.0	25.0	20.0	---	18.0
30	9.0	6.0	---	---	---	---	10.0	---	25.0	18.0	19.0	20.0
31	9.0	---	---	---	---	---	---	18.0	---	17.0	19.0	---
MONTH	13.0	4.5	---	---	---	---	---	14.5	22.5	21.5	20.5	18.0
YEAR	15.5											

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATIO (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	24	125	8.1	51	30	4.1	26	1 9	7.7
2	18	118	5.7	41	30	3.3	26	89	6.
3	13	131	4.6	37	30	3.0	24	52	3.4
4	10	128	3.5	34	30	2.8	21	41	2.3
5	9.0	81	2.0	32	26	2.2	18	37	1.8
6	7.1	46	.88	29	27	2.1	16	34	1.5
7	7.4	43	.86	21	34	1.9	14	33	1.2
8	117	73	58	26	35	2.5	13	33	1.2
9	1810	188	919	33	35	3.1	15	25	1.
10	1270	43	147	98	67	18	2	22	1.2
11	690	88	164	106	31	8.9	106	112	32
12	538	53	77	68	20	3.7	153	126	52
13	157	46	19	60	21	3.4	130	78	27
14	72	53	10	44	26	3.1	86	56	13
15	52	47	6.6	36	24	2.3	62	43	7.2
16	42	53	6.0	31	22	1.8	54	35	5.1
17	36	63	6.1	28	22	1.7	107	73	21
18	31	70	5.9	15	14	.57	220	192	114
19	29	73	5.7	25	14	.95	170	185	85
20	25	77	5.2	32	22	1.9	110	124	37
21	27	83	6.1	45	51	6.2	60	54	8.7
22	33	83	7.4	41	38	4.2	47	36	4.6
23	188	207	127	34	14	1.3	24	33	2.1
24	404	302	329	29	15	1.2	18	35	1.7
25	307	193	160	26	20	1.4	9.8	35	.93
26	206	73	41	22	19	1.1	6.7	35	.63
27	368	32	32	21	25	1.4	5.7	34	.52
28	318	32	27	21	37	2.1	4.1	32	.35
29	264	28	21	21	62	3.5	2.9	31	.24
30	142	28	11	24	73	4.7	2.5	29	.20
31	74	29	5.8	--	--	--	2.6	27	.19
TOTAL	7308.5	--	2222.44	1131	--	98.42	1574.3	--	440.96

06903400 CHARITON RIVER NEAR CHARITON, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DAY	JANUARY MEAN DISCHARGE (CFS)	JANUARY MEAN CONCENTRATION (MG/L)	JANUARY SEDIMENT DISCHARGE (TONS/DAY)	FEBRUARY MEAN DISCHARGE (CFS)	FEBRUARY MEAN CONCENTRATION (MG/L)	FEBRUARY SEDIMENT DISCHARGE (TONS/DAY)	MARCH MEAN DISCHARGE (CFS)	MARCH MEAN CONCENTRATION (MG/L)	MARCH SEDIMENT DISCHARGE (TONS/DAY)
1	2.8	24	.18	6.4	38	.66	560	99	150
2	3.4	23	.21	6.4	29	.50	450	74	90
3	4.0	30	.32	6.3	17	.29	200	48	26
4	4.7	31	.39	6.2	24	.40	140	50	19
5	5.5	35	.52	6.2	24	.40	120	53	17
6	6.8	38	.70	5.4	14	.20	94	34	8.6
7	7.5	44	.89	4.5	12	.15	77	33	6.9
8	8.0	46	.99	3.6	11	.11	65	39	6.8
9	8.6	45	1.0	3.0	15	.12	59	44	7.0
10	9.0	40	.97	3.2	19	.16	60	79	14
11	8.8	36	.86	3.3	20	.18	334	572	542
12	8.5	35	.80	3.5	25	.24	778	470	987
13	8.3	34	.76	3.6	13	.13	523	470	664
14	8.0	36	.78	3.7	11	.11	607	382	626
15	7.8	38	.80	3.8	13	.13	351	218	207
16	7.5	38	.77	4.5	19	.23	192	165	86
17	7.3	37	.73	6.6	38	.68	124	120	40
18	7.0	38	.72	420	190	215	88	91	22
19	6.8	38	.70	750	134	271	78	88	19
20	6.6	35	.62	530	112	160	72	77	15
21	7.0	31	.59	330	64	57	63	68	12
22	7.4	21	.42	270	44	32	56	56	8.5
23	7.7	11	.23	200	32	17	45	35	4.3
24	7.9	12	.26	150	27	11	36	35	3.4
25	8.1	31	.68	100	27	7.3	34	24	2.2
26	7.6	27	.55	350	204	193	32	35	3..
27	6.8	56	1.0	700	156	295	32	46	4..
28	6.7	15	.27	600	119	193	32	48	4.1
29	6.6	15	.27	--	--	--	32	44	3.8
30	6.5	22	.39	--	--	--	32	24	2.1
31	6.5	22	.39	--	--	--	27	22	1.6
TOTAL	215.7	--	18.76	4480.2	--	1455.99	5393	--	3602.3

DAY	APRIL MEAN DISCHARGE (CFS)	APRIL MEAN CONCENTRATION (MG/L)	APRIL SEDIMENT DISCHARGE (TONS/DAY)	MAY MEAN DISCHARGE (CFS)	MAY MEAN CONCENTRATION (MG/L)	MAY SEDIMENT DISCHARGE (TONS/DAY)	JUNE MEAN DISCHARGE (CFS)	JUNE MEAN CONCENTRATION (MG/L)	JUNE SEDIMENT DISCHARGE (TONS/DAY)
1	26	25	1.8	28	122	9.2	5.1	650	9.0
2	22	23	1.4	21	131	7.4	4.4	515	6.1
3	19	18	.92	17	180	8.3	3.6	44	4.3
4	17	19	.87	14	218	8.2	3.2	640	5.5
5	14	19	.72	12	184	6.0	5.1	790	11
6	15	16	.65	13	159	5.6	5.0	875	12
7	14	20	.76	16	212	9.2	3.4	825	7.5
8	14	27	1.0	33	228	24	2.8	665	5..
9	12	26	.84	49	482	64	2.9	61.	4..
10	10	26	.70	31	272	23	2.7	675	.9
11	10	29	.78	33	490	44	2.7	98	7.1
12	9.8	34	.90	29	503	39	2.1	830	4.7
13	12	36	1.2	15	325	13	2.0	555	3..
14	11	56	1.7	11	440	13	1.8	335	1.6
15	9.1	96	2.4	8.5	435	10	2.3	440	2.7
16	9.2	102	2.5	6.5	295	5.2	2.5	285	1.9
17	9.5	113	2.9	5.0	200	2.7	1.5	265	1.1
18	10	142	3.8	10	554	60	1.3	240	.84
19	11	156	4.6	220	3780	2420	1.3	220	.77
20	11	131	3.9	127	2610	929	1.2	315	1.0
21	12	156	5.1	123	1600	592	.90	350	.85
22	13	166	5.8	48	250	32	.97	335	.88
23	11	106	3.1	25	470	32	1.1	560	1.7
24	13	110	3.9	39	912	138	.91	740	1.8
25	13	156	5.5	92	1980	529	.84	340	.77
26	12	123	4.0	28	1160	88	.90	395	.96
27	25	214	16	16	855	37	.93	345	.87
28	43	265	31	12	800	26	.92	245	.61
29	28	127	9.6	9.6	490	13	.81	315	.69
30	23	144	8.9	7.8	455	9.6	1.3	250	.88
31	--	--	--	6.4	475	8.2	--	--	--
TOTAL	458.6	--	127.24	1105.8	--	5205.6	66.48	--	104.92

06903400 CHARITON RIVER NEAR CHARITON, IOWA--CONTINUED

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2.1	190	1.1	7.1	175	3.4	.81	183	.40
2	1.9	200	1.0	4.7	172	2.2	.86	190	.44
3	1.3	270	.95	4.3	210	2.4	.90	192	.47
4	1.9	285	1.5	5.1	228	3.1	2.1	177	1.
5	2.7	245	1.8	5.8	203	3.2	14	374	15
6	2.0	170	.92	6.9	79	1.5	8.7	234	5.5
7	1.3	166	.58	4.0	160	1.7	4.0	217	2.3
8	1.1	186	.55	2.8	161	1.2	19	454	23
9	1.2	170	.55	2.3	189	1.2	17	480	22
10	1.7	225	1.0	1.9	245	1.3	9.6	342	8.3
11	1.9	209	1.1	1.8	158	.77	4.9	263	3.5
12	1.6	227	.98	1.5	173	.70	2.9	175	1.4
13	1.1	371	1.1	1.3	182	.64	1.7	205	.94
14	1.0	377	1.0	1.3	232	.81	1.0	254	.69
15	.90	271	.66	1.5	218	.88	.89	172	.41
16	.90	510	1.2	2.6	193	1.4	.72	178	.35
17	.90	439	1.1	1.5	131	.53	.66	407	.73
18	.90	431	1.0	1.2	272	.88	.71	379	.73
19	.89	358	.86	1.0	193	.52	.88	285	.68
20	.81	247	.54	.83	230	.52	1.0	211	.57
21	.81	362	.79	.90	198	.48	.91	249	.61
22	.81	400	.87	.90	200	.49	.85	213	.49
23	32	462	55	.84	186	.42	.78	198	.42
24	110	627	199	.90	140	.34	.64	166	.29
25	313	701	592	.84	132	.30	.72	242	.47
26	436	400	471	.82	135	.30	.74	188	.38
27	201	322	175	.81	132	.29	.79	188	.41
28	83	409	92	.84	146	.33	.71	421	.81
29	42	310	35	.84	121	.27	.68	327	.60
30	19	260	13	.81	120	.26	.68	13	.24
31	11	205	6.1	.81	183	.40	--	--	--
TOTAL	1276.72	--	1659.25	68.74	--	32.73	99.23	--	98.12

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 23178.27
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 1566.73

WATER QUALITY DATA, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	NUMBER OF SAMPLING POINTS	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM
MAY									
19...	0735	16.0	--	263	3780	2680	59	78	91
26...	1130	14.0	3	27	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	METHOD OF ANALYSIS
MAY										
19...	94	97	98	100	--	--	--	--	--	SPWC
26...	--	--	--	--	92	95	98	99	100	SV

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS STATIONS

Water-quality records at miscellaneous stations

The Geological Survey collects data on specific conductance, pH and water temperature at many stream-gaging stations and low-flow partial-record stations other than regular water-quality stations. These data are collected during routine visits to the station for purpose of measuring streamflow. Additional information pertaining to location, drainage area and period of record are published in Part 1 of this report.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1970 to SEPTEMBER 1971

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
MINNESOTA RIVER BASIN					
05317650 - BLUE EARTH R NR LAKOTA,IOWA (LAT 43 30 LONG 094 09)					
AUG., 1971					
23...	1515	.94	730	8.2	30.0
05317700 - UNION SLOUGH OUTLET NR LAKOTA, IOWA (LAT 43 24 LONG 094 07)					
AUG., 1971					
23...	1435	1.1	1020	8.0	30.0
05317810 - WF BLUE EARTH R BL MINN-IOWA STATE LINE (LAT 43 26 LONG 094 04)					
AUG., 1971					
26...	1035	1.5	1170	7.9	19.0
TURKEY RIVER BASIN					
05411600 - TURKEY R AT SPILLVILLE, IOWA (LAT 43 12 28 LONG 091 56 56)					
OCT., 1970					
07...	1215	60	450	8.4	15.0
NOV.					
16...	1700	179	460	8.1	4.0
JAN., 1971					
07...	1145	63	--	--	.0
FEB.					
08...	--	47	540	8.3	.0
APR.					
26...	1400	153	426	--	14.5
JUNE					
07...	1500	224	350	7.7	--
JULY					
19...	--	73	440	8.2	25.5
AUG.					
30...	1310	37	--	--	21.0
05412500 - TURKEY R AT GARBER, IOWA (LAT 42 44 24 LONG 091 15 42)					
NOV., 1970					
18...	1645	1040	510	--	5.0
DEC.					
09...	1140	934	--	--	.0
JAN., 1971					
08...	1010	423	--	--	.0
FEB.					
03...	1200	356	--	--	1.0
11...	1715	375	600	--	.0
APR.					
16...	1442	2130	--	--	11.0
17...	--	1990	--	--	11.5
19...	--	1770	--	--	12.0
22...	1415	1740	--	--	10.0
27...	1455	1160	495	8.7	10.0
JUNE					
02...	1205	1270	--	--	18.5
09...	1155	1770	500	--	20.0
JULY					
20...	1440	1720	330	--	--
AUG.					
30...	1220	325	--	--	23.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
LITTLE MAQUOKETA RIVER BASIN					
05414500 - LITTLE MAQUOKETA R NEAR DURANGO, IOWA (LAT 42 33 18 LONG 090 44 46)					
OCT., 1970					
08...	1750	48	--	--	16.5
NOV.					
19...	1100	40	590	--	6.0
DEC.					
07...	1350	35	--	--	30.0
JAN., 1971					
08...	1245	22	--	--	.0
FEB.					
03...	0930	18	--	--	.0
12...	0925	36	690	--	.0
APR.					
06...	0935	124	--	--	5.0
27...	1700	87	590	--	10.0
MAY					
07...	0840	69	--	--	12.0
JUNE					
02...	0945	59	--	--	18.5
09...	1415	40	480	--	21.0
JULY					
21...	1440	39	460	--	24.0
SEP.					
01...	1345	21	--	--	19.5
MAQUOKETA RIVER BASIN					
05418500 - MAQUOKETA R NEAR MAQUOKETA, IOWA (LAT 42 05 05 LONG 090 38 04)					
OCT., 1970					
06...	0940	920	500	--	15.0
NOV.					
16...	1305	606	--	--	3.5
JAN., 1971					
08...	1245	334	680	--	.0
FEB.					
12...	1530	516	570	--	.0
APR.					
02...	1010	2220	--	--	2.0
29...	1425	1010	--	--	10.5
JUNE					
08...	1615	712	--	--	15.0
JULY					
22...	0945	758	390	--	--
27...	0925	648	--	--	20.0
WAPSIPINICON RIVER BASIN					
05420540 - WAPSIPINCON R NR RICEVILLE, IOWA (LAT 43 20 LONG 092 34)					
SEP., 1971					
02...	1000	6.8	370	--	21.0
05420560 - WAPSIPINICON R NEAR ELMA, IOWA (LAT 43 14 34 LONG 092 31 48)					
OCT., 1970					
07...	0950	13	390	--	17.0
NOV.					
19...	1727	68	--	--	4.0
DEC.					
29...	1330	19	415	--	.0
FEB., 1971					
09...	1153	14	410	--	.0
MAR.					
26...	1010	96	330	--	1.0
APR.					
01...	1000	1120	--	--	5.0
MAY					
03...	1525	39	380	--	12.0
JUNE					
15...	0810	30	370	--	23.5
JULY					
28...	1015	13	380	--	17.5
SEP.					
02...	0920	8.1	350	--	20.0
08...	1105	8.6	400	--	23.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
WAPSIPINICON RIVER BASIN--CONTINUED					
05420580 - WAPSIPINICON R NR IONIA, IOWA (LAT 43 01 LONG 092 23)					
SEP., 1971					
02...	1240	11	350	--	25.0
05420640 - L WAPSIPINICON R AT ELMA, IOWA (LAT 43 14 LONG 092 27)					
SEP., 1971					
02...	0800	3.6	415	--	17.0
05420660 - WAPSIPINICON R NR NEW HAMPTON, IOWA (LAT 42 59 LONG 092 22)					
SEP., 1971					
02...	1120	23	360	--	22.0
05420680 - WAPSIPINICON R NR TRIPOLI, IOWA (LAT 42 05 LONG 092 15)					
SEP., 1971					
01...	1415	21	370	--	22.0
05420700 - EF WAPSIPINICON R NR FREDERICKSBURG, IOWA (LAT 43 01 LONG 092 13)					
SEP., 1971					
02...	1315	5.2	350	--	26.0
05420720 - EF WAPSIPINICON R NR TRIPOLI, IOWA (LAT 42 51 LONG 092 14)					
SEP., 1971					
01...	1450	13	410	--	22.0
05420740 - WAPSIPINICON R AT TRIPOLI, IOWA (LAT 42 48 LONG 092 14)					
SEP., 1971					
01...	1140	23	360	--	21.0
05420840 - OTTER CR NR OTTERVILLE, IOWA (LAT 42 33 LONG 091 57)					
SEP., 1971					
01...	1305	4.2	415	--	25.0
05420960 - BUCK CR NR LITTLETON, IOWA (LAT 42 35 LONG 092 03)					
SEP., 1971					
01...	1830	.06	400	8.3	25.0
05420900 - L WAPSIPINICON R AT LITTLETON, IOWA (LAT 42 33 LONG 092 02)					
SEP., 1971					
01...	1045	10	400	--	20.0
05420940 - OTTER CR NR OTTERVILLE, IOWA (LAT 42 33 LONG 091 57)					
SEP., 1971					
01...	0815	12	460	--	19.0
05421000 - WAPSIPINICON R AT INDEPENDENCE, IOWA (LAT 42 27 49 LONG 091 53 42)					
OCT., 1970					
06...	1250	244	--	--	15.5
NOV.					
15...	1415	1080	400	7.9	3.0
JAN., 1971					
06...	1415	183	--	--	.0
FEB.					
11...	1100	141	490	8.2	.5
APR.					
26...	1120	568	355	8.7	14.0
JUNE					
07...	1115	648	375	7.9	15.5
JULY					
19...	1035	272	330	8.1	21.0
AUG.					
30...	1010	63	--	--	22.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
WAPSIPINICON RIVER BASIN--CONTINUED					
05421500 - WAPSIPINICON R AT STONE CITY, IOWA (LAT 42 07 LONG 091 21)					
SEP., 1971					
01...	0950	115	320	8.1	23.0
05421550 - BUFFALO CR NR STONE CITY, IOWA (LAT 42 30 LONG 091 44)					
SEP., 1971					
01...	1725	4.4	495	8.4	26.0
05421700 - BUFFALO CR NR STONE CITY, IOWA (LAT 42 08 LONG 091 21)					
SEP., 1971					
01...	1050	24	400	8.1	20.0
05421800 - YANKEE RUN AT WHEATLAND, IOWA (LAT 41 50 LONG 090 50)					
SEP., 1971					
02...	1110	4.1	510	8.3	23.0
05421850 - MUD CR NR PLAINVIEW, IOWA (LAT 41 42 LONG 090 45)					
SEP., 1971					
02...	1630	5.4	550	8.5	31.0
05421900 - SILVER CR NR DE WITT, IOWA (LAT 41 47 LONG 090 33)					
SEP., 1971					
02...	1230	9.6	550	8.5	25.0
05422000 - WAPSIPINICON R NEAR DEWITT, IOWA (LAT 41 46 01 LONG 090 32 05)					
OCT., 1970					
05...	1710	1200	450	--	19.5
NOV.					
17...	1130	1790	--	--	4.0
JAN., 1971					
07...	1600	615	590	--	.0
FEB.					
11...	1450	394	--	--	1.0
MAR.					
17...	1200	4900	275	--	--
JUNE					
10...	1015	1300	475	--	13.5
JULY					
22...	1240	1060	350	--	--
SEP.					
01...	1420	284	390	--	25.5
05422100 - BROPHYS CR NR LOW MOOR, IOWA (LAT 41 49 LONG 090 24)					
SEP., 1971					
02...	1500	9.9	700	8.3	25.0
IOWA RIVER BASIN					
05448300 - WF IOWA R NR BRITT, IOWA (LAT 43 06 LONG 093 45)					
SEP., 1971					
01...	1020	1.2	570	8.7	21.0
05448400 - WESTMAIN DRAINAGE DITCH 1 & 2 NR BRITT, IOWA (LAT 43 06 LONG 093 47)					
SEP., 1971					
01...	0925	1.1	650	8.1	20.0

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05449000 - EAST BRANCH IOWA R NEAR KLEMME, IOWA (LAT 43 00 31 LONG 093 37 42)					
OCT., 1970					
01...	1320	4.9	--	--	16.0
NOV.					
05...	1030	22	855	--	6.0
DEC.					
16...	1130	20	900	--	.0
JAN., 1971					
26...	1015	4.9	710	--	.5
MAR.					
08...	1212	60	750	--	.0
31...	1150	948	--	--	3.0
APR.					
06...	1310	250	--	--	6.0
21...	1125	67	750	--	13.0
JUNE					
02...	1550	29	710	--	15.0
JULY					
13...	1105	35	730	--	21.5
AUG.					
24...	1040	8.5	750	--	24.0
05449500 - IOWA RIVER NEAR ROWAN, IOWA (LAT 42 45 36 LONG 093 37 23)					
NOV., 1970					
05...	1235	83	--	--	6.0
DEC.					
16...	1400	79	--	--	1.0
JAN., 1971					
26...	1100	24	--	--	.5
MAR.					
08...	1000	144	--	--	.0
31...	1015	2060	--	--	4.0
APR.					
21...	1340	254	--	--	13.0
JUNE					
04...	1300	127	--	--	26.0
11...	1128	928	--	--	20.0
JULY					
13...	1335	156	--	--	24.5
AUG.					
24...	1305	30	--	--	25.0
05451100 - SF IOWA R NR ALDEN, IOWA (LAT 42 28 LONG 093 27)					
SEP., 1971					
02...	1630	.12	740	8.8	26.0
05451150 - TIPTON CR NR NEW PROVIDENCE, IOWA (LAT 42 20 LONG 093 12)					
SEP., 1971					
02...	1440	.08	450	8.7	24.0
05451200 - SF IOWA R NR NEW PROVIDENCE, IOWA (LAT 42 19 LONG 093 10)					
SEP., 1971					
02...	1410	3.4	560	8.6	24.0
05451250 - BEAVER CR NR ELDORA, IOWA (LAT 42 21 LONG 093 08)					
SEP., 1971					
02...	1510	1.7	580	8.6	25.0
05451300 - HONEY CR NR NEW PROVIDENCE, IOWA (LAT 42 16 LONG 093 11)					
SEP., 1971					
02...	1330	.10	625	8.6	24.0
05451350 - HONEY CR AT BANGOR, IOWA (LAT 42 10 LONG 093 05)					
SEP., 1971					
02...	1115	1.1	560	8.7	23.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05451400 - MINERVA CR AT CLEMONS, IOWA (LAT 42 08 LONG 093 09)					
SEP., 1971					
02...	1230	.17	570	8.6	24.0
05451450 - MINERVA CR NR CLEMONS, IOWA (LAT 42 07 LONG 093 05)					
SEP., 1971					
02...	1200	3.7	520	8.6	24.0
05451500 - IOWA R AT MARSHALLTOWN, IOWA (LAT 42 04 00 LONG 092 54 18)					
DEC., 1970					
02...	0815	700	--	--	3.5
FEB., 1971					
17...	1710	183	--	--	.0
MAY					
10...	1740	486	--	--	17.0
JUNE					
15...	0935	1320	--	--	19.5
JULY					
27...	1105	341	--	--	20.5
SEP.					
09...	1845	83	--	--	25.0
05452000 - SALT CREEK NEAR ELBERON, IOWA (LAT 41 57 51 LONG 092 18 47)					
OCT., 1970					
28...	1145	172	560	--	10.0
DEC.					
01...	1005	113	550	--	8.5
16...	1225	90	--	--	1.0
JAN., 1971					
12...	1240	57	580	--	.0
FEB.					
18...	1110	50	450	--	.0
MAR.					
30...	1520	153	350	--	--
MAY					
11...	1310	58	490	--	17.0
12...	0950	52	--	--	10.0
JUNE					
08...	0845	58	--	--	20.0
14...	1000	80	400	--	25.0
JULY					
29...	1140	26	375	--	20.5
SEP.					
10...	1125	11	410	--	27.0
05453000 - BIG BEAR CREEK AT LADORA, IOWA (LAT 41 44 58 LONG 092 10 55)					
OCT., 1970					
26...	1350	291	500	--	13.0
NOV.					
30...	1110	127	470	--	5.0
DEC.					
16...	1530	115	--	--	1.5
JAN., 1971					
14...	1300	67	500	--	.0
FEB.					
16...	1400	43	530	--	--
APR.					
16...	0955	51	--	--	14.0
MAY					
12...	1045	47	510	--	12.0
JUNE					
09...	0845	49	--	--	16.5
15...	1525	115	410	--	25.5
JULY					
30...	1150	30	450	--	19.5
SEP.					
07...	1055	10	695	--	23.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05453100 - IOWA R AT MARENGO, IOWA (LAT 41 48 41 LONG 092 03 42)					
OCT., 1970					
26...	1135	1860	--	--	13.0
NOV.					
30...	1445	1660	600	--	5.0
DEC.					
17...	1100	1160	--	--	1.0
JAN., 1971					
14...	1505	623	610	--	.0
FEB.					
11...	1350	448	--	--	.5
MAR.					
31...	1100	3750	640	--	--
APR.					
01...	1600	3800	--	--	5.5
MAY					
10...	1415	1020	--	--	17.0
12...	1525	1070	495	--	16.0
JUNE					
16...	1115	2270	480	--	24.0
JULY					
30...	1435	598	500	--	20.0
AUG.					
23...	0935	287	--	--	25.0
SEP.					
07...	0845	261	460	--	--
05453500 - LAKE MACBRIDE NEAR SOLON, IOWA (LAT 41 47 42 LONG 091 34 28)					
OCT., 1970					
27...	0815	--	270	--	--
DEC.					
21...	1115	--	325	--	--
MAR., 1971					
23...	0810	--	150	--	--
APR.					
20...	1240	--	210	--	15.5
JUNE					
21...	0850	--	--	--	25.0
JULY					
26...	0820	--	250	--	--
AUG.					
23...	1300	--	--	--	24.5
SEP.					
23...	1045	--	250	--	17.0
05454000 - RAPID C NR IOWA CITY IOWA (LAT 41 41 19 LONG 091 29 15)					
OCT., 1970					
12...	1155	14	520	8.4	13.5
DEC.					
21...	1420	21	590	--	--
JAN., 1971					
26...	1600	6.0	550	7.7	--
MAR.					
23...	1025	8.1	600	8.1	3.5
APR.					
20...	1430	7.5	520	8.3	23.5
MAY					
25...	1005	5.4	--	--	13.5
JULY					
27...	1155	1.5	--	--	20.0
AUG.					
23...	1350	.18	--	--	26.0
SEP.					
23...	1135	.10	425	--	13.0

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05454300 - CLEAR CREEK NEAR CORALVILLE, IOWA (LAT 41 40 36 LONG 091 35 55)					
DEC., 1970					
21...	1428	91	430	--	--
JAN., 1971					
28...	1005	20	500	7.5	--
FEB.					
12...	1105	18	--	--	1.0
24...	1145	30	--	--	.5
MAR.					
15...	1600	94	--	--	2.0
23...	1140	34	500	8.1	4.0
31...	1315	41	--	--	10.0
APR.					
19...	1440	39	480	8.0	20.0
MAY					
10...	1300	26	--	--	14.5
25...	1520	34	--	--	13.0
JUNE					
09...	1055	18	--	--	14.5
21...	1320	16	--	--	26.0
JULY					
21...	1120	13	--	--	22.0
AUG.					
20...	0750	4.6	--	--	20.5
24...	1330	3.9	--	--	24.5
SEP.					
27...	1325	3.6	630	--	--
05455010 - SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IOWA (LAT 41 39 05 LONG 091 30 27)					
OCT., 1970					
12...	0935	1.6	--	--	13.5
DEC.					
21...	0940	2.0	610	--	--
JAN., 1971					
27...	1500	.27	650	7.9	--
MAR.					
23...	1555	.95	600	8.2	3.5
APR.					
21...	0900	.70	520	8.0	15.5
MAY					
25...	1205	.54	--	--	11.0
JULY					
20...	1030	.69	--	--	18.0
AUG.					
23...	1040	.06	--	--	23.5
SEP.					
23...	0910	.06	640	--	11.0
05455500 - ENGLISH R AT KALONA, IOWA (LAT 41 27 59 LONG 091 42 56)					
OCT., 1970					
14...	0950	761	--	--	13.0
DEC.					
21...	1135	389	420	7.8	--
JAN., 1971					
28...	1310	118	420	7.2	--
FEB.					
11...	1500	66	--	--	1.0
25...	1030	403	450	7.6	--
MAR.					
22...	1315	257	460	7.5	4.5
APR.					
01...	0950	196	--	--	4.0
20...	0940	167	300	8.2	20.0
JUNE					
09...	1455	118	--	--	15.0
JULY					
20...	1500	115	--	--	24.0
SEP.					
24...	1400	18	400	--	16.0
05457300 - OTTER CR NR OTRANTO, IOWA (LAT 43 28 LONG 092 58)					
SEP., 1971					
02...	1240	5.3	440	--	24.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05457350 - CEDAR R AT CTRANTO, IOWA (LAT 43 27 LONG 092 59)					
SEP., 1971					
02...	1145	73	590	8.6	24.0
05457400 - DEER CR NR MELTONVILLE, IOWA (LAT 43 26 LONG 093 05)					
SEP., 1971					
01...	1505	2.3	495	--	26.0
05457450 - DEER CR AT ST ANSGAR, IOWA (LAT 43 23 LONG 092 58)					
SEP., 1971					
02...	1330	4.2	500	8.7	26.0
05457600 - ROCK CR NR FLOYD, IOWA (LAT 43 13 LONG 092 49)					
SEP., 1971					
02...	1525	9.4	480	8.6	30.0
05457700 - CEDAR R AT CHARLES CITY, IOWA (LAT 43 03 45 LONG 092 40 23)					
OCT., 1970					
06...	1540	190	510	--	17.0
NOV.					
20...	0900	1010	530	--	4.0
DEC.					
29...	0950	314	490	--	.0
FEB., 1971					
08...	1630	240	610	--	.0
MAR.					
25...	1040	1690	460	--	1.0
MAY					
04...	0830	579	570	--	11.0
JUNE					
16...	0900	528	570	--	24.0
JULY					
28...	1515	284	375	--	17.0
SEP.					
08...	1512	176	540	--	27.5
05457800 - L CEDAR R NR STACEYVILLE, IOWA (LAT 43 28 LONG 092 47)					
SEP., 1971					
02...	1415	4.1	405	8.7	30.0
05458000 - LITTLE CEDAR R NEAR ONIA, IOWA (LAT 43 02 05 LONG 092 30 05)					
OCT., 1970					
07...	0825	48	440	--	16.0
NOV.					
20...	1300	593	340	--	3.5
DEC.					
29...	1140	81	380	--	.0
FEB., 1971					
09...	0935	53	460	--	.0
MAR.					
25...	1312	402	--	--	1.5
31...	1740	2390	--	--	5.0
MAY					
03...	1720	146	440	--	12.0
JUNE					
15...	1625	115	430	--	25.0
JULY					
28...	1330	62	330	--	17.0
SEP.					
08...	1325	32	420	--	27.5
22...	1420	34	420	--	17.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05458500 - CEDAR R AT JANESVILLE, IOWA (LAT 42 38 54 LONG 092 27 54)					
OCT., 1970					
06...	1120	362	420	--	17.5
NOV.					
12...	1718	1870	550	--	8.5
DEC.					
30...	1000	482	420	--	.0
FEB., 1971					
10...	--	378	645	--	.0
MAR.					
18...	1540	8500	--	--	1.0
25...	1305	2960	390	--	.0
MAY					
24...	1315	1020	480	--	11.5
JUNE					
16...	1400	1020	530	--	25.0
JULY					
29...	1035	506	400	--	17.5
SEP.					
09...	1515	290	--	--	24.0
05458550 - BEAVERDAM CR NR ROCKWELL, IOWA (LAT 42 58 LONG 093 15)					
SEP., 1971					
02...	0940	4.3	625	8.7	23.0
05458600 - BAILEY CR NR SHEFFIELD, IOWA (LAT 42 54 LONG 093 16)					
SEP., 1971					
23...	1015	5.4	620	--	12.5
05458750 - OTTER CR NR HANSELL, IOWA (LAT 42 46 LONG 093 07)					
SEP., 1971					
01...	1030	8.4	510	8.6	23.0
05458770 - SQUAW CR NR HANSELL, IOWA (LAT 42 44 LONG 093 07)					
SEP., 1971					
01...	0950	2.7	850	8.8	23.0
05458780 - HARTGRAVE CR NR HANSELL, IOWA (LAT 42 44 LONG 093 05)					
SEP., 1971					
01...	1105	18	570	8.7	23.0
05458790 - BOYLAN CR NR BRISTOW, IOWA (LAT 42 46 LONG 092 56)					
SEP., 1971					
22...	1135	.32	375	--	13.5
05458800 - MAYNES CR NR HAMPTON, IOWA (LAT 42 41 LONG 093 12)					
SEP., 1971					
01...	1245	4.0	470	8.6	23.0
05458850 - MAYNES CR NR DUMONT, IOWA (LAT 42 42 LONG 092 58)					
SEP., 1971					
02...	1020	9.4	510	8.7	26.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05458900 - WEST FORK CEDAR R AT FINCHFORD, IOWA (LAT 42 37 50 LONG 092 32 25)					
OCT., 1970					
06...	0940	74	420	--	17.5
NOV.					
13...	1005	567	680	--	7.0
DEC.					
30...	1205	130	690	--	.0
FEB., 1971					
10...	1110	102	640	--	.0
MAR.					
18...	1300	6230	--	--	2.0
25...	1530	1940	500	--	--
MAY					
04...	1500	480	600	--	11.5
JUNE					
16...	1545	513	580	--	25.0
JULY					
29...	1250	203	460	--	18.0
SEP.					
01...	1545	69	400	--	23.5
09...	1645	50	--	--	25.0
05459000 - SHELL ROCK R NEAR NORTHWOOD, IOWA (LAT 43 24 51 LONG 093 13 14)					
OCT., 1970					
07...	1420	32	590	--	17.0
NOV.					
19...	1505	275	635	--	4.0
DEC.					
28...	1355	84	675	--	.0
FEB., 1971					
08...	1400	34	750	--	.0
MAR.					
24...	1745	920	540	--	.0
31...	1352	1260	--	--	5.0
MAY					
03...	1235	173	500	--	11.0
JUNE					
14...	1420	257	560	--	25.0
JULY					
27...	1245	43	600	--	19.0
SEP.					
07...	1135	18	540	--	26.0
05459050 - LIME CR NR SCARVILLE, IOWA (LAT 43 27 LONG 093 35)					
SEP., 1971					
01...	1220	9.5	750	8.5	24.0
05459200 - WINNEBAGO R NR FOREST CITY, IOWA (LAT 43 18 LONG 093 39)					
SEP., 1971					
01...	1120	10	790	9.6	23.0
05459300 - WINNEBAGO R NR FERTILE, IOWA (LAT 43 15 LONG 093 26)					
SEP., 1971					
01...	1325	21	740	8.6	23.0
05459400 - BEAVER CR NR FERTILE, IOWA (LAT 43 16 LONG 093 27)					
SEP., 1971					
01...	1400	4.8	770	8.5	23.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05459500 - WINNEBAGO R AT MASON CITY, IOWA (LAT 43 09 54 LONG 093 11 33)					
OCT., 1970					
07...	1620	72	850	--	17.0
NOV.					
19...	1235	452	850	--	3.5
DEC.					
28...	1535	137	500	--	.0
FEB., 1971					
08...	1130	73	900	--	1.0
MAR.					
24...	1520	1140	540	--	1.0
31...	1530	2700	--	--	6.0
MAY					
03...	1025	265	890	--	11.0
JUNE					
14...	1700	511	590	--	26.0
JULY					
27...	1440	125	710	--	16.0
SEP.					
07...	1400	42	645	--	27.0
05460200 - WILLOW CR AT MASON CITY, IOWA (LAT 43 09 46 LONG 093 14 20)					
SEP., 1971					
02...	0835	6.8	700	8.6	20.0
05461100 - COLD WATER CR NR GREENE, IOWA (LAT 42 53 LONG 092 51)					
SEP., 1971					
02...	1725	.01	500	--	28.5
05461400 - FLOOD CR NR PACKARD, IOWA (LAT 42 53 LONG 092 42)					
SEP., 1971					
02...	1850	.20	360	8.5	30.0
05462000 - SHELL ROCK R AT SHELL ROCK, IOWA (LAT 42 39 10 LONG 092 35 46)					
OCT., 1970					
06...	1345	321	550	--	17.5
NOV.					
13...	1415	1950	670	--	8.0
DEC.					
29...	1625	607	610	--	.0
FEB., 1971					
09...	1522	368	540	--	.0
MAR.					
25...	0825	3490	510	--	.0
APR.					
02...	1105	10300	--	--	.0
MAY					
04...	1100	1100	550	--	11.0
JUNE					
16...	1125	1470	570	--	25.0
JULY					
29...	0850	442	530	--	17.5
SEP.					
09...	1055	254	--	--	22.0
22...	1145	214	420	--	15.0
05462700 - BEAVER CR NR ACKLEY, IOWA (LAT 42 34 LONG 093 02)					
SEP., 1971					
01...	1335	2.9	660	8.6	23.5
05462800 - S BEAVER CR NR PARKERSBURG, IOWA (LAT 42 34 LONG 092 49)					
SEP., 1971					
01...	1425	5.6	500	8.7	23.0

IOWA RIVER BASIN--CONTINUED

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
05463000 - BEAVER CREEK AT NEW HARTFORD, IOWA (LAT 42 30 50 LONG 092 37 55)					
OCT., 1970					
05...	1650	30	450	--	17.0
NOV.					
13...	1530	145	650	--	5.5
DEC.					
30...	1350	48	610	--	.0
FEB., 1971					
10...	1300	26	590	--	.0
MAY					
04...	1655	140	550	--	12.0
JUNE					
17...	0850	441	570	--	25.0
JULY					
08...	1120	176	590	--	25.0
29...	1430	60	530	--	18.0
SEP.					
02...	1040	22	520	--	21.5
09...	1220	24	540	--	22.0
05463100 - BLACK HAWK CR NR GRUNDY CENTER, IOWA (LAT 42 22 LONG 092 44)					
SEP., 1971					
02...	1010	4.0	690	8.7	23.0
05463200 - MOSQUITO CR AT REINBECK, IOWA (LAT 42 20 LONG 092 37)					
SEP., 1971					
02...	0940	.92	500	8.6	22.0
05463300 - BLACK HAWK CR AT REINBECK, IOWA (LAT 42 20 LONG 092 36)					
SEP., 1971					
02...	0900	9.0	640	8.8	22.0
05463400 - N BLACK HAWK CR AT DIKE, IOWA (LAT 42 27 LONG 092 37)					
SEP., 1971					
02...	0815	2.0	340	8.6	21.0
05463500 - BLACK HAWK CREEK AT HUDSON, IOWA (LAT 42 24 28 LONG 092 27 47)					
OCT., 1970					
05...	1015	37	610	--	16.0
NOV.					
12...	1130	125	625	--	8.5
DEC.					
30...	1520	48	680	--	.0
FEB., 1971					
10...	1450	28	--	--	.0
MAR.					
26...	1240	240	--	--	.0
MAY					
05...	1155	92	430	--	11.0
JUNE					
17...	1355	162	520	--	26.0
JULY					
08...	1315	195	410	--	23.5
29...	1630	50	520	--	18.0
SEP.					
02...	0845	17	520	--	--
10...	1125	18	--	--	19.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05464000 - CEDAR R AT WATERLOO, IOWA (LAT 42 29 44 LONG 092 20 03)					
OCT., 1970					
05...	1445	941	380	--	16.0
NOV.					
12...	1505	4920	650	--	8.5
DEC.					
31...	0910	1690	650	--	.0
FEB., 1971					
11...	0922	976	690	--	.0
MAR.					
26...	1035	9140	470	--	.0
APR.					
02...	1400	25400	--	--	.0
MAY					
05...	0915	3140	510	--	11.0
JUNE					
17...	1130	3300	570	--	25.0
JULY					
30...	0945	1420	470	--	17.0
SEP.					
01...	1155	792	435	--	21.5
10...	0945	748	--	--	18.0
05464050 - MILLERS CR NR LAPORTE CITY, IOWA (LAT 42 23 LONG 092 15)					
SEP., 1971					
01...	1345	6.5	910	8.2	25.5
05464100 - WOLF CR NR BEAMAN, IOWA (LAT 42 12 47 LONG 092 47 12)					
SEP., 1971					
01...	0945	3.4	700	8.4	19.0
05464150 - TWELVE MILE CR NR BUCKINGHAM, IOWA (LAT 42 14 LONG 092 26)					
SEP., 1971					
01...	1110	3.8	610	8.3	21.0
05464200 - WOLF CR NR BUCKINGHAM, IOWA (LAT 42 15 33 LONG 092 21 42)					
SEP., 1971					
01...	1155	19	600	8.2	22.5
05464250 - WOLF CR AT LAPORTE CITY, IOWA (LAT 42 19 LONG 092 12)					
SEP., 1971					
02...	1300	31	650	8.5	23.0
05464300 - SPRING CR NR LAPORTE CITY, IOWA (LAT 42 20 LONG 092 06)					
SEP., 1971					
01...	1430	8.3	600	8.6	26.0
05464320 - E BLUE CR NR CENTER POINT, IOWA (LAT 42 11 41 LONG 091 48 28)					
SEP., 1971					
02...	1320	2.1	550	8.2	28.0
05464350 - BEAR CR AT SHELLSBURG, IOWA (LAT 42 05 39 LONG 091 53 34)					
SEP., 1971					
02...	1500	1.8	510	8.5	31.0
05464400 - BEAR CR NR PALO, IOWA (LAT 42 04 55 LONG 091 47 40)					
SEP., 1971					
02...	1605	5.0	600	8.5	31.0
05464460 - OTTER CR NR CEDAR RAPIDS, IOWA (LAT 42 03 57 LONG 091 44 27)					
SEP., 1971					
02...	1450	6.8	550	8.4	29.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05464500 - CEDAR RIVER AT CEDAR RAPIDS, IOWA (LAT 41 58 14 LONG 091 40 01)					
OCT., 1970					
26...	1350	2920	600	--	14.0
DEC.					
23...	1100	1830	--	--	.0
JAN., 1971					
25...	1125	2490	650	--	.0
FEB.					
24...	1100	13500	210	--	.0
MAR.					
25...	1020	17400	--	--	1.0
APR.					
07...	1130	19300	--	--	7.0
23...	0950	5380	--	--	14.5
MAY					
24...	1115	4510	--	--	13.0
JUNE					
08...	0955	5400	--	--	22.5
JULY					
26...	1055	2140	510	--	24.0
AUG.					
25...	0850	1090	--	--	22.0
SEP.					
02...	0850	1020	400	8.1	25.0
24...	0855	887	430	--	--
05464550 - PRAIRIE CR AT CEDAR RAPIDS, IOWA (LAT 41 58 06 LONG 092 07 51)					
SEP., 1971					
02...	1355	1.9	530	8.5	29.5
05464600 - PRAIRIE CR AT NORWAY, IOWA (LAT 41 54 LONG 091 56)					
SEP., 1971					
02...	1450	5.9	590	8.6	31.0
05464650 - PRAIRIE CR AT CEDAR RAPIDS, IOWA (LAT 41 55 49 LONG 091 40 34)					
SEP., 1971					
02...	0954	16	600	8.2	21.5
05464700 - INDIAN CR AT CEDAR RAPIDS, IOWA (LAT 41 59 42 LONG 091 37 03)					
SEP., 1971					
02...	1110	6.9	520	8.3	21.5
05464750 - BIG CR AT BERTRAM, IOWA (LAT 41 57 23 LONG 091 31 35)					
SEP., 1971					
02...	1215	18	500	8.4	25.0
05464800 - ROCK CR AT ROCHESTER, IOWA (LAT 41 57 23 LONG 091 31 35)					
SEP., 1971					
01...	1510	6.3	530	8.4	24.0
05464850 - SUGAR CR NR BENNETT, IOWA (LAT 41 41 56 LONG 091 02 43)					
SEP., 1971					
01...	1410	4.2	500	8.3	27.0
05464900 - MUD CR NR WILTON JUNCTION, IOWA (LAT 41 34 45 LONG 091 02 17)					
SEP., 1971					
01...	1315	5.3	600	8.1	27.0
05464920 - SUGAR CR NR MOSCOW, IOWA (LAT 41 34 00 LONG 091 04 02)					
SEP., 1971					
01...	1210	15	530	8.3	24.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
IOWA RIVER BASIN--CONTINUED					
05464940 - E8 WAPSINONOC CR AT WEST LIBERTY, IOWA (LAT 41 33 26 LONG 091 15 19)					
SEP., 1971					
01...	1100	2.7	1080	7.9	21.5
05464950 - WB WAPSINONOC CR AT WEST LIBERTY, IOWA (LAT 41 33 48 LONG 091 16 13)					
SEP., 1971					
01...	1000	.99	670	8.2	21.5
05465500 - IOWA R AT WAPELLO, IOWA (LAT 41 10 48 LONG 091 10 57)					
OCT., 1970					
22...	1025	7420	460	--	12.0
DEC.					
30...	1335	7020	--	--	1.5
JAN., 1971					
14...	0950	--	670	--	.0
26...	1140	3870	--	--	.0
FEB.					
25...	1045	24000	--	--	.5
APR.					
07...	1215	25800	350	--	7.0
AUG.					
04...	0930	2920	440	--	--
SEP.					
15...	1410	1460	425	--	--
FLINT RIVER BASIN					
05469700 - FLINT CR NR BURLINGTON, IOWA (LAT 40 52 00 LONG 091 12 03)					
AUG., 1971					
26...	1015	1.8	440	7.9	19.0
SKUNK RIVER BASIN					
05469800 - S SKUNK R NR ELLSWORTH, IOWA (LAT 42 19 LONG 093 35)					
AUG., 1971					
24...	1405	.19	630	7.8	24.5
05469850 - MUD LAKE DRAINAGE DITCH 71 AT JEWELL, IOWA (LAT 42 19 LONG 093 38)					
AUG., 1971					
24...	1340	.78	1100	7.9	26.5
05469950 - S SKUNK R AT RANDALL, IOWA (LAT 42 14 LONG 093 35)					
AUG., 1971					
24...	1450	.72	1090	7.9	26.5
05470000 - SOUTH SKUNK R NEAR AMES, IOWA (LAT 42 04 05 LONG 093 37 02)					
NOV., 1970					
03...	1000	161	850	--	5.0
DEC.					
17...	1300	136	860	--	1.0
JAN., 1971					
01...	1030	38	500	--	.5
FEB.					
19...	1615	2990	--	--	1.0
MAR.					
09...	1300	228	740	--	3.0
APR.					
23...	0955	98	720	--	14.0
JUNE					
03...	1340	84	740	--	18.5
JULY					
15...	1130	86	800	--	24.5
23...	0935	31	740	--	23.0
AUG.					
26...	1015	5.9	560	--	20.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
SKUNK RIVER BASIN--CONTINUED					
05470200 - SQUAW CR NR STANHOPE, IOWA (LAT 42 12 34 LONG 093 47 07)					
AUG., 1971					
24...	1150	.04	--	--	28.0
05470500 - SQUAW CREEK AT AMES, IOWA (LAT 42 01 21 LONG 093 37 45)					
NOV., 1970					
03...	1115	87	750	--	5.0
30...	1247	92	850	--	.5
DEC.					
17...	1040	70	760	--	--
JAN., 1971					
27...	1227	20	630	--	.5
FEB.					
19...	1055	3320	--	--	1.0
24...	1206	267	--	--	.0
MAR.					
10...	1045	128	640	--	4.0
APR.					
23...	1015	61	680	--	12.0
JUNE					
03...	0935	58	725	--	18.0
22...	1045	27	665	--	24.5
JULY					
15...	1305	30	750	--	25.0
23...	1100	21	545	--	24.0
AUG.					
16...	1330	.84	--	--	27.0
26...	1420	.18	--	--	24.0
05471000 - S SKUNK R BELOW SQUAW CK NEAR AMES, IOWA (LAT 42 00 31 LONG 093 35 57)					
OCT., 1970					
21...	1107	198	800	--	14.0
NOV.					
03...	1315	276	790	--	5.0
DEC.					
01...	1245	304	810	--	--
17...	1450	187	850	--	1.0
JAN., 1971					
08...	1000	44	950	--	.0
27...	1418	56	560	--	.5
MAR.					
10...	1330	350	650	--	--
APR.					
23...	1415	172	--	--	18.5
MAY					
14...	1210	94	670	--	20.0
JUNE					
03...	1120	152	730	--	18.0
22...	1245	82	675	--	27.0
JULY					
15...	1540	129	770	--	25.5
AUG.					
13...	1345	9.9	--	--	28.0
26...	1215	8.8	690	--	24.0
05471050 - S SKUNK R AT COLFAX, IOWA (LAT 41 40 55 LONG 093 14 47)					
AUG., 1971					
23...	1320	32	690	8.6	29.0
05471100 - EB INDIAN CR NR NEVADA, IOWA (LAT 41 02 LONG 093 22)					
AUG., 1971					
23...	1530	.05	550	8.2	30.5
05471150 - WB INDIAN CR NR IOWA CENTER, IOWA (LAT 41 56 LONG 093 26)					
AUG., 1971					
23...	1505	.82	1500	8.2	31.5
05471180 - INDIAN CR NR IOWA CENTER, IOWA (LAT 41 55 LONG 093 25)					
AUG., 1971					
23...	1440	.63	740	8.1	33.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
SKUNK RIVER BASIN--CONTINUED					
05471350 - CLEAR CR NR MINGO, IOWA (LAT 41 47 LONG 093 16)					
AUG., 1971					
23...	1345	1.5	550	8.0	33.5
05471400 - ELK CR NR TAINTOR, IOWA (LAT 41 29 LONG 092 51)					
AUG., 1971					
23...	1005	.92	480	8.0	23.0
05471500 - S SKUNK R NEAR OSKALOOSA, IOWA (LAT 41 21 19 LONG 092 39 31)					
NOV., 1970					
02...	1136	973	750	--	7.5
JAN., 1971					
21...	1230	230	800	--	.0
MAR.					
04...	1115	3940	--	--	.5
APR.					
12...	1210	814	580	--	16.5
MAY					
27...	1420	1210	620	--	13.5
JULY					
02...	1140	431	--	--	16.0
AUG.					
16...	1050	90	605	--	21.0
05472100 - N SKUNK R NR NEWTON, IOWA (LAT 41 47 LONG 093 02)					
AUG., 1971					
23...	1140	1.5	600	8.0	24.0
05472300 - N SKUNK R NR SEARSBORO, IOWA (LAT 41 32 LONG 092 42)					
AUG., 1971					
23...	0920	14	600	8.1	21.5
05472400 - MIDDLE CR NR ROSE HILL, IOWA (LAT 41 20 42 LONG 092 28 25)					
AUG., 1971					
23...	1205	.15	550	7.7	27.0
05472450 - CEDAR CR NR SIGOURNEY, IOWA (LAT 41 18 42 LONG 092 13 33)					
AUG., 1971					
23...	1030	1.2	1050	7.9	24.0
05472500 - NORTH SKUNK RIVER NEAR SIGOURNEY, IOWA (LAT 41 18 03 LONG 092 12 16)					
OCT., 1970					
20...	1045	645	440	8.2	10.5
DEC.					
01...	1050	429	--	--	5.0
JAN., 1971					
12...	1605	210	480	7.5	.0
MAR.					
04...	1345	924	--	--	.5
APR.					
05...	1010	253	440	7.8	5.0
MAY					
17...	1010	132	450	8.2	11.0
JUNE					
21...	0920	150	415	8.2	25.0
AUG.					
02...	0945	60	475	--	21.5
SEP.					
13...	1000	24	450	7.7	20.0
05473000 - SKUNK R AT COPPOCK, IOWA (LAT 41 10 LONG 091 43)					
AUG., 1971					
24...	1145	156	630	8.3	26.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
SKUNK RIVER BASIN--CONTINUED					
05473020 - EF CROOKED CR NR WINFIELD, IOWA (LAT 41 09 LONG 091 26)					
AUG., 1971					
24...	1500	.96	850	7.9	28.0
05473050 - CROOKED CR NR COPPOCK, IOWA (LAT 41 12 LONG 091 42)					
AUG., 1971					
24...	1020	3.7	770	8.3	24.0
05473100 - WALNUT CR AT GERMANVILLE, IOWA (LAT 41 06 LONG 091 46)					
AUG., 1971					
24...	1245	.12	560	7.8	30.0
05473200 - CEDAR CR NR HIGHLAND CENTER, IOWA (LAT 41 06 30 LONG 092 21 58)					
AUG., 1971					
25...	1920	.28	570	7.7	25.0
05473250 - COMPETINE CR BELOW FORKS NR BATAVIA, IOWA (LAT 41 02 LONG 092 07)					
AUG., 1971					
25...	1400	.01	450	7.8	29.0
05473300 - CEDAR CR NR BATAVIA, IOWA (LAT 41 01 LONG 092 07)					
AUG., 1971					
25...	1300	.92	460	8.1	29.0
05473400 - CEDAR CR NR OAKLAND MILLS, IOWA (LAT 40 55 LONG 091 40)					
AUG., 1971					
25...	0825	9.9	500	7.7	22.0
05473450 - BIG CR AT MT PLEASANT, IOWA (LAT 41 00 LONG 091 32)					
AUG., 1971					
24...	1605	.03	500	8.0	29.0
05474000 - SKUNK R AT AUGUSTA, IOWA (LAT 40 45 13 LONG 091 16 40)					
OCT., 1970					
21...	1435	2430	560	--	13.0
DEC.					
02...	1330	2000	--	--	4.0
09...	1515	1410	--	--	2.0
JAN., 1971					
11...	1440	987	625	--	.0
FEB.					
23...	1315	11200	--	--	.5
APR.					
06...	1520	1850	540	--	6.0
MAY					
19...	1035	922	750	--	--
JUNE					
02...	1450	2110	--	--	14.5
22...	1125	902	470	--	--
AUG.					
23...	1520	454	430	--	23.0
SEP.					
14...	1550	186	475	--	21.5
DEVILS CREEK BASIN					
05474200 - SUGAR CR NR FRANKLIN, IOWA (LAT 40 39 54 LONG 091 28 39)					
AUG., 1971					
25...	1810	.01	600	9.0	28.5
05474300 - SUGAR CR NR VIELE, IOWA (LAT 40 36 39 LONG 091 26 24)					
AUG., 1971					
25...	1700	.21	590	7.9	26.5

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)
DES MOINES RIVER BASIN					
05476500 - WF DES MOINES R AT ESTHERVILLE, IOWA (LAT 43 23 51 LONG 094 50 38)					
OCT., 1970					
20...	1255	186	1100	--	.5
NOV.					
30...	1325	353	1020	--	3.0
JAN., 1971					
15...	1000	108	1690	--	.0
MAR.					
02...	1230	295	740	--	--
30...	1300	2290	--	--	2.0
APR.					
08...	1440	1680	620	--	9.0
MAY					
13...	1512	279	750	--	18.0
JUNE					
10...	1415	854	--	--	19.0
24...	1410	758	880	--	25.0
SEP.					
20...	1310	17	1250	--	11.0
05476550 - JACK CR NR RINGSTED, IOWA (LAT 43 16 LONG 094 38)					
AUG., 1971					
24...	1050	.15	610	7.6	21.0
05476600 - SILVER CR NR EMMETTSBURG, IOWA (LAT 43 06 LONG 094 43)					
AUG., 1971					
25...	0930	3.6	660	8.0	18.0
05476650 - CYLINDER CR NR RODMAN, IOWA (LAT 43 02 LONG 094 34)					
AUG., 1971					
24...	1325	2.8	1000	7.7	26.0
05476700 - PRAIRIE CR NR WEST BEND, IOWA (LAT 42 55 LONG 094 27)					
AUG., 1971					
24...	1450	.18	1080	8.1	27.0
05476720 - BEAVER CR NR ROLFE, IOWA (LAT 42 50 LONG 094 28)					
AUG., 1971					
24...	0915	2.4	670	7.9	23.0
05476740 - PILOT CR NR ROLFE, IOWA (LAT 42 49 LONG 094 27)					
AUG., 1971					
24...	0840	4.9	710	8.1	22.0
05476750 - WF DES MOINES R AT HUMBOLDT, IOWA (LAT 42 43 12 LONG 094 13 06)					
NOV., 1970					
04...	1450	337	825	--	6.0
DEC.					
14...	1130	365	1200	--	.0
JAN., 1971					
25...	1140	173	1080	--	2.5
FEB.					
17...	1410	90	--	--	.5
26...	1340	1380	--	--	1.0
MAR.					
08...	1040	629	750	--	.0
29...	1315	4100	--	--	1.5
APR.					
20...	1310	1350	700	--	16.5
JUNE					
01...	1520	690	700	--	14.0
11...	1320	3350	600	--	21.5
JULY					
12...	1530	1500	790	--	28.0
05477800 - MUD CR AT BANCROFT, IOWA (LAT 43 18 30 LONG 094 12)					
AUG., 1971					
23...	1335	.66	1340	7.6	25.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05478000 - E FORK DES MOINES R NEAR BURT, IOWA (LAT 43 12 38 LONG 094 10 35)					
OCT., 1970					
20...	1057	91	675	--	1.5
NOV.					
30...	1025	150	725	--	3.0
JAN., 1971					
11...	1250	32	1000	--	.0
MAR.					
10...	1050	154	900	--	.0
30...	1550	1490	--	--	2.0
MAY					
17...	1053	104	560	--	17.0
JUNE					
10...	1700	770	600	--	19.5
24...	1045	245	540	--	25.0
AUG.					
17...	1000	7.2	730	--	22.0
23...	1120	3.7	--	--	24.0
SEP.					
20...	1515	.33	725	--	11.0
05478100 - N BUFFALO CR NR BUFFALO CENTER, IOWA (LAT 43 19 LONG 093 58)					
AUG., 1971					
23...	1745	.61	720	7.9	33.0
05478150 - BLACK CAT CR NR LONE ROCK, IOWA (LAT 43 12 LONG 094 20)					
AUG., 1971					
23...	1100	.10	1260	7.9	23.0
05478200 - BLACK CAT CR NR ALGONA, IOWA (LAT 43 08 LONG 094 14)					
AUG., 1971					
23...	1010	.02	740	7.9	23.0
05478350 - LOTTS CR NR WEST BEND, IOWA (LAT 43 58 LONG 094 23)					
AUG., 1971					
26...	1500	2.1	1160	8.1	25.0
05478400 - LOTTS CR AT LIVERMORE, IOWA (LAT 42 52 LONG 094 11)					
AUG., 1971					
23...	0920	5.2	840	8.2	24.0
05479000 - E FORK DES MOINES R AT DAKOTA CITY, IOWA (LAT 42 43 26 LONG 094 11 30)					
NOV., 1970					
04...	1305	125	700	--	6.0
DEC.					
14...	0950	160	790	--	.0
JAN., 1971					
25...	0940	65	840	--	2.5
FEB.					
17...	1600	50	--	--	.5
MAR.					
29...	1100	3730	--	--	1.5
APR.					
20...	1055	810	580	--	16.5
JUNE					
02...	0920	468	600	--	13.5
11...	1035	1970	590	--	21.0
JULY					
12...	1305	478	740	--	28.0
AUG.					
25...	0905	34	725	--	24.0
05479600 - LIZARD CR NR PALMER, IOWA (LAT 42 39 LONG 094 30)					
AUG., 1971					
24...	1135	1.0	1200	8.0	24.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05479800 - N8 LIZARD CR NR HAVELOCK, IOWA (LAT 42 48 LONG 094 40)					
AUG., 1971					
24...	1000	1.1	800	8.0	23.0
05479900 - LIZARD CR NR GILMORE CITY, IOWA (LAT 42 38 LONG 094 28)					
AUG., 1971					
24...	1210	4.0	790	8.0	24.5
05480000 - LIZARD CREEK NEAR CLARE, IOWA (LAT 42 32 35 LONG 094 20 45)					
NOV., 1970					
06...	1120	26	800	--	6.0
JAN., 1971					
25...	1635	5.3	545	--	1.5
FEB.					
17...	1200	4.4	--	--	.5
MAR.					
16...	1555	633	--	--	1.0
30...	1135	936	360	--	3.0
JUNE					
01...	1140	63	710	--	13.5
11...	0935	424	590	--	23.0
JULY					
12...	1010	248	700	--	25.5
AUG.					
23...	1300	5.0	800	--	25.0
05480100 - S8 LIZARD CR NR PALMER, IOWA (LAT 42 35 LONG 094 32)					
AUG., 1971					
24...	1110	.06	700	7.9	26.0
05480300 - S8 LIZARD CR NR FORT DODGE, IOWA (LAT 42 29 50 LONG 094 13 59)					
AUG., 1971					
24...	1310	.14	610	8.0	26.0
05480500 - DES MOINES R AT FORT DODGE, IOWA (LAT 42 30 22 LONG 094 12 04)					
OCT., 1970					
12...	1035	701	1080	--	10.5
NOV.					
09...	1005	483	900	--	8.0
DEC.					
18...	1300	780	840	--	1.0
JAN., 1971					
28...	1400	59	950	--	.5
FEB.					
17...	1005	279	--	--	.5
26...	1130	3140	--	--	1.0
MAR.					
05...	1545	2040	540	--	--
29...	1545	10300	--	--	1.5
JUNE					
04...	0905	581	630	--	--
09...	1455	6850	670	--	21.0
JULY					
01...	1515	2920	535	--	26.5
14...	1640	2220	740	--	26.5
AUG.					
12...	1530	434	725	--	27.0
23...	1440	404	700	--	25.0
SEP.					
24...	1435	48	750	--	16.5
05480620 - BRUSHY CR NR HOMER, IOWA (LAT 42 23 LONG 093 59)					
AUG., 1971					
23...	1655	1.0	570	8.1	30.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05480660 - BOONE R NR KANAWHA, IOWA (LAT 42 55 LONG 093 53)					
AUG., 1971					
23...	1025	1.3	725	8.1	23.5
05480700 - BOONE R NR RENWICK, IOWA (LAT 42 53 LONG 093 55)					
AUG., 1971					
23...	1110	2.5	800	7.9	24.0
05480720 - PRAIRIE CR NR LUVERNE, IOWA (LAT 42 57 LONG 094 05)					
AUG., 1971					
23...	0945	2.4	825	8.0	22.0
05480760 - PRAIRIE CR NR RENWICK, IOWA (LAT 42 52 LONG 093 59)					
AUG., 1971					
23...	0855	2.5	510	8.1	25.0
05480800 - OTTER CR NR GOLDFIELD, IOWA (LAT 42 47 LONG 093 53)					
AUG., 1971					
23...	1150	1.5	620	8.1	24.5
05480820 - BOONE R NR GOLDFIELD, IOWA (LAT 42 43 LONG 093 57)					
AUG., 1971					
23...	1300	11	655	7.8	25.5
05480960 - EAGLE CR NR EAGLE GROVE, IOWA (LAT 42 42 LONG 093 49)					
AUG., 1971					
23...	1350	1.5	740	8.1	32.0
05480990 - EAGLE CR NR WOOLSTOCK, IOWA (LAT 42 34 LONG 093 51)					
AUG., 1971					
23...	1515	3.9	730	8.0	30.0
05480940 - WHITE FOX CR NR WOOLSTOCK, IOWA (LAT 42 36 LONG 093 45)					
AUG., 1971					
23...	1430	3.1	690	7.6	30.0
05480980 - WHITE FOX CR AT WEBSTER CITY, IOWA (LAT 42 30 LONG 093 48)					
AUG., 1971					
23...	1555	3.7	600	8.2	31.5
05481000 - BOONE R NEAR WEBSTER CITY, IOWA (LAT 42 26 01 LONG 093 48 12)					
NOV., 1970					
05...	1420	106	810	--	6.0
DEC.					
16...	1550	109	850	--	1.0
JAN., 1971					
26...	1435	63	975	--	.5
FEB.					
16...	1615	32	--	--	.5
MAR.					
09...	1010	343	650	--	2.0
17...	0915	436	--	--	2.0
APR.					
22...	0930	330	540	--	14.0
JUNE					
04...	1500	301	540	--	29.0
JULY					
14...	0955	503	790	--	24.5
AUG.					
24...	1505	37	690	--	26.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05481300 - DES MOINES R NEAR STRATFORD, IOWA (LAT 42 15 04 LONG 093 59 52)					
NOV., 1970					
06...	1300	675	850	--	6.0
DEC.					
21...	1128	574	790	--	.5
JAN., 1971					
28...	1000	316	910	--	.5
FEB.					
16...	1430	192	--	--	.5
MAR.					
17...	1200	13200	--	--	3.0
MAY					
20...	1420	1360	--	--	10.5
JUNE					
04...	1715	2330	--	--	27.0
JULY					
14...	1240	3110	760	--	24.5
AUG.					
25...	1500	311	575	--	25.0
05481600 - BIG CR AT POLK CITY, IOWA (LAT 41 46 LONG 093 42)					
AUG., 1971					
23...	1710	.11	700	7.6	28.5
05481900 - BEAVER CR AT GRANGER, IOWA (LAT 41 45 39 LONG 093 51 01)					
AUG., 1971					
24...	0945	.61	610	7.9	22.5
05482100 - N RACCOON R NR REMBRANDT, IOWA (LAT 42 47 LONG 095 06)					
AUG., 1971					
03...	1000	5.9	790	8.3	17.0
05482120 - N RACCOON R NR TRUESDALE, IOWA (LAT 42 42 LONG 095 05)					
AUG., 1971					
03...	1045	11	750	8.3	17.0
05482170 - BIG CEDAR CREEK NEAR VARINA, IOWA (LAT 42 41 16 LONG 094 47 52)					
NOV., 1970					
06...	0925	3.5	1800	--	5.5
DEC.					
14...	1420	3.4	1600	--	.0
JAN., 1971					
25...	1355	.96	1275	--	1.5
MAR.					
08...	1520	19	800	--	.0
29...	1015	330	--	--	1.0
APR.					
09...	0820	41	--	--	9.0
20...	1525	18	660	--	17.0
JUNE					
01...	0930	71	675	--	13.5
07...	0955	940	--	--	21.0
JULY					
13...	1555	35	880	--	24.0
AUG.					
23...	1030	1.4	1045	--	25.0
SEP.					
24...	1125	.72	2180	--	15.0
05482180 - L CEDAR CR NR FONDA, IOWA (LAT 42 37 LONG 094 51)					
AUG., 1971					
04...	0940	3.8	690	8.3	20.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05482200 - S CEDAR CR AT FONDA, IOWA (LAT 42 35 LONG 094 51)					
AUG., 1971					
04...	1010	7.4	780	8.4	20.0
05482220 - S CEDAR CR AT SAC CITY, IOWA (LAT 42 24 LONG 094 59)					
AUG., 1971					
04...	1135	12	700	8.4	20.0
05482300 - NORTH RACCOON R NEAR SAC CITY, IOWA (LAT 42 20 28 LONG 094 59 05)					
OCT., 1970					
09...	1300	217	790	--	3.5
21...	1510	63	950	--	15.0
DEC.					
01...	1410	150	800	--	7.0
JAN., 1971					
13...	0945	19	960	--	.0
APR.					
07...	0910	390	730	--	8.0
MAY					
18...	1130	104	780	--	20.0
JUNE					
10...	1315	2950	490	--	21.0
25...	1015	177	800	--	24.5
JULY					
13...	1414	431	770	--	25.0
AUG.					
11...	0925	30	770	--	21.5
SEP.					
07...	1920	16	860	--	27.0
22...	1235	9.9	810	--	11.0
05482320 - INDIAN CR NR LAKE VIEW, IOWA (LAT 42 20 LONG 095 00)					
AUG., 1971					
03...	1315	1.2	700	8.6	22.0
05482360 - CAMP CR NR LYTTON, IOWA (LAT 42 23 LONG 094 50)					
AUG., 1971					
03...	1405	.22	760	8.9	22.0
05482380 - CAMP CR NR LAKE CITY, IOWA (LAT 42 17 LONG 094 50)					
AUG., 1971					
03...	1510	1.2	830	8.5	27.0
05482400 - N RACCOON R NR LAKE CITY, IOWA (LAT 42 16 LONG 094 50)					
AUG., 1971					
03...	1610	56	410	8.6	27.0
05482410 - LAKE CR NR ROCKWELL CITY, IOWA (LAT 42 24 LONG 094 36)					
AUG., 1971					
04...	1240	.80	2600	8.4	20.0
05482420 - LAKE CR NR LAKE CITY, IOWA (LAT 42 16 LONG 094 47)					
AUG., 1971					
02...	1510	1.7	1110	8.9	29.0
05482440 - PURGATORY CR NR LANESBORO, IOWA (LAT 42 10 LONG 094 38)					
AUG., 1971					
02...	1000	.44	520	8.2	19.5
05482460 - E CEDAR CR NR SOMERS, IOWA (LAT 42 22 07 LONG 094 27 03)					
AUG., 1971					
04...	1330	4.7	750	8.7	20.0

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05482480 - CEDAR CR NR CHURDAN, IOWA (LAT 42 08 LONG 094 35)					
AUG., 1971					
02...	1035	.71	500	8.2	20.0
05482500 - N RACCOON R NEAR JEFFERSON, IOWA (LAT 41 59 17 LONG 094 22 36)					
OCT., 1970					
23...	1345	186	850	--	16.0
DEC.					
03...	1135	343	800	--	8.0
17...	1522	262	--	--	.0
JAN., 1971					
13...	1330	58	940	--	.0
19...	1230	48	--	--	.0
FEB.					
24...	1505	1770	300	--	--
MAR.					
15...	1100	6790	--	--	1.0
APR.					
05...	1030	1200	660	--	--
MAY					
18...	1500	291	520	--	16.0
JUNE					
11...	1300	2860	480	--	22.0
17...	1035	778	--	--	24.5
28...	1030	232	570	--	29.0
JULY					
21...	1530	204	--	--	15.0
AUG.					
09...	1130	70	610	--	26.0
SEP.					
21...	1010	27	700	--	22.0
05482700 - HARDIN CR NR CHURDAN, IOWA (LAT 42 10 LONG 094 26)					
AUG., 1971					
02...	0900	.43	540	8.3	18.5
05483000 - EAST FORK HARDIN CREEK NEAR CHURDAN, IOWA (LAT 42 06 27 LONG 094 22 12)					
OCT., 1970					
23...	1500	.59	--	--	16.0
JAN., 1971					
13...	1230	.08	--	--	.0
FEB.					
25...	0915	14	--	--	2.0
MAR.					
17...	1440	19	--	--	7.0
APR.					
05...	1440	7.0	--	--	8.0
MAY					
18...	1626	2.9	--	--	19.0
JUNE					
30...	0825	1.3	--	--	22.0
AUG.					
09...	1000	.07	--	--	22.0
05483050 - HARDIN CR NR JEFFERSON, IOWA (LAT 42 01 LONG 094 20)					
AUG., 1971					
02...	1140	.46	640	8.3	23.5
05483100 - W BUTTRICK CR NR FARNHAMVILLE, IOWA (LAT 42 13 LONG 094 22)					
AUG., 1971					
02...	0830	.35	1300	8.4	15.0
05483150 - E BUTTRICK CR NR GRAND JUNCTION, IOWA (LAT 42 04 LONG 094 16)					
AUG., 1971					
02...	1245	.25	550	8.3	28.5
05483200 - BUTTRICK CR NR GRAND JUNCTION, IOWA (LAT 42 02 LONG 094 17)					
AUG., 1971					
02...	1215	.45	440	8.2	26.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05483250 - GREEN BRIER CR NR JAMAICA, IOWA (LAT 41 51 LONG 094 17)					
AUG., 1971					
02...	1605	1.0	360	8.1	21.0
05483300 - N RACCOON R NR PERRY, IOWA (LAT 41 50 LONG 094 08)					
AUG., 1971					
02...	1655	132	485	8.5	21.0
05483310 - S RACCOON R NR GUTHRIE CENTER, IOWA (LAT 41 41 LONG 094 32)					
AUG., 1971					
03...	1330	11	410	8.1	21.0
05483320 - BRUSHY FORK CR NR DEDHAM, IOWA (LAT 41 47 LONG 094 54)					
AUG., 1971					
02...	1105	5.4	500	8.2	18.0
05483330 - BRUSHY FORK CR NR GUTHRIE CENTER, IOWA (LAT 41 39 LONG 094 27)					
AUG., 1971					
03...	1240	21	380	8.3	21.0
05483340 - S RACCOON R NR MONTEITH, IOWA (LAT 41 38 LONG 094 25)					
AUG., 1971					
03...	1205	41	390	8.3	21.0
05483350 - M RACCOON R NR CARROLL, IOWA (LAT 42 03 LONG 094 49)					
AUG., 1971					
02...	0930	3.1	750	8.3	18.0
05483360 - M RACCOON R NR GLIDDEN, IOWA (LAT 42 03 LONG 094 46)					
AUG., 1971					
02...	1015	4.0	610	8.5	18.0
05483330 - WILLOW CR NR SCRANTON, IOWA (LAT 41 54 LONG 094 35)					
AUG., 1971					
02...	1250	.83	460	8.7	19.0
05483400 - WILLOW CR NR BAYARD, IOWA (LAT 41 49 LONG 094 33)					
AUG., 1971					
02...	1330	2.6	320	8.8	20.0
05483450 - M RACCOON R NR BAYARD, IOWA (LAT 41 47 LONG 094 30)					
AUG., 1971					
02...	1410	22	560	8.4	21.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05483600 - MIDDLE RACCOON RIVER AT PANORA, IOWA (LAT 41 41 14 LONG 094 22 15)					
OCT., 1970					
22...	1030	22	--	--	12.5
28...	1210	13	--	--	10.0
NOV.					
24...	1455	7.4	--	--	1.0
DEC.					
02...	1030	7.4	--	--	5.5
JAN., 1971					
14...	1425	7.5	--	--	.0
FEB.					
24...	1220	1080	--	--	2.0
APR.					
06...	1410	40	--	--	9.0
MAY					
19...	1658	1020	--	--	18.0
JUNE					
07...	1045	60	--	--	21.5
29...	1000	81	--	--	26.0
AUG.					
10...	1430	20	--	--	24.0
SEP.					
21...	1305	20	--	--	22.0
05483620 - MOSQUITO CR NR LINDEN, IOWA (LAT 41 43 LONG 094 15)					
AUG., 1971					
02...	1510	.78	380	8.4	21.0
05483640 - MOSQUITO CR NR REDFIELD, IOWA (LAT 41 38 LONG 094 13)					
AUG., 1971					
03...	1045	2.4	400	8.3	21.0
05483660 - M RACCOON R AT REDFIELD, IOWA (LAT 41 36 LONG 094 13)					
AUG., 1971					
03...	1010	30	460	8.2	21.0
05484000 - S RACCOON R AT REDFIELD, IOWA (LAT 41 34 48 LONG 094 10 58)					
OCT., 1970					
22...	1335	194	419	--	14.0
DEC.					
02...	1230	104	520	--	5.0
17...	1230	85	--	--	.5
JAN., 1971					
14...	1200	48	--	--	.0
19...	1530	33	--	--	.0
FEB.					
23...	1425	1740	280	--	2.0
APR.					
06...	1230	199	530	--	8.0
MAY					
19...	1420	2070	400	--	15.0
JUNE					
16...	1325	352	--	--	30.0
29...	1217	170	495	--	30.0
AUG.					
10...	1250	34	460	--	30.0
SEP.					
21...	1500	47	450	--	22.0
05484200 - PANTHER CR NR ADEL, IOWA (LAT 41 36 LONG 094 06)					
AUG., 1971					
03...	0930	8.3	610	8.1	21.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05484500 - RACCOON R AT VAN METER, IOWA (LAT 41 32 02 LONG 093 56 59)					
OCT., 1970					
22...	1530	537	650	--	15.0
DEC.					
02...	1445	733	745	--	15.5
JAN., 1971					
07...	1130	152	900	--	.0
14...	1000	155	--	--	.0
FEB.					
23...	1140	10800	275	--	2.0
APR.					
06...	1000	2030	600	--	7.0
MAY					
19...	1120	4570	340	--	16.0
JUNE					
29...	1500	564	495	--	31.0
JULY					
21...	1200	403	--	--	14.5
AUG.					
10...	1055	160	540	--	26.0
SEP.					
24...	1100	86	560	--	19.0
05484700 - WALNUT CR AT WEST DES MOINES, IOWA (LAT 41 36 00 LONG 093 43 07)					
AUG., 1971					
03...	0830	11	480	8.0	20.0
05485500 - DES MOINES R BELOW RACCOON R AT DES MOINES, IOWA (LAT 41 34 30 LONG 093 35 48)					
OCT., 1970					
14...	1500	1500	--	--	14.5
NOV.					
04...	1400	1150	720	--	6.0
DEC.					
08...	1455	1060	840	--	1.0
29...	1240	1090	--	--	.5
JAN., 1971					
13...	1200	603	--	--	.5
19...	1430	367	900	--	.0
28...	1410	565	--	--	.5
FEB.					
25...	1100	12900	--	--	1.5
MAR.					
01...	1700	11200	340	--	.5
24...	1430	15100	--	--	2.0
APR.					
14...	1025	6830	680	--	--
MAY					
24...	1340	4240	520	--	17.0
JULY					
07...	1515	9230	--	--	24.0
AUG.					
17...	1235	479	680	--	25.0
05485650 - FOURMILE CR AT DES MOINES, IOWA (LAT 41 36 03 LONG 093 31 47)					
AUG., 1971					
24...	0730	.34	1400	7.8	21.0
05485700 - NORTH R NR EARLHAM, IOWA (LAT 41 24 LONG 094 11)					
AUG., 1971					
24...	0740	.67	440	--	23.0
05485850 - N8 NORTH R AT WINTERSET, IOWA (LAT 41 26 LONG 093 56)					
AUG., 1971					
24...	1155	.47	550	--	26.0
05485900 - NORTH R NR WINTERSET, IOWA (LAT 41 26 LONG 093 55)					
AUG., 1971					
24...	1230	1.1	550	--	27.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05486100 - MIDDLE R NR CASEY, IOWA (LAT 41 30 LONG 094 29)					
AUG., 1971					
24...	0955	1.1	540	--	23.0
05486150 - MIDDLE R AT MIDDLE RIVER, IOWA (LAT 41 20 LONG 094 14)					
AUG., 1971					
24...	0850	4.4	450	--	23.0
05486300 - CLANTON CR AT EAST PERU, IOWA (LAT 41 14 LONG 093 55)					
AUG., 1971					
23...	1545	.02	540	--	34.0
05486350 - CLANTON CR NR MARTENSDALE, IOWA (LAT 41 21 LONG 093 45)					
AUG., 1971					
24...	1340	.98	470	--	27.0
05486400 - MIDDLE R AT MARTENSDALE, IOWA (LAT 41 22 LONG 093 44)					
AUG., 1971					
24...	1315	8.7	505	--	29.0
05486490 - MIDDLE R NEAR INDIANOLA, IOWA (LAT 41 25 27 LONG 093 35 09)					
NOV., 1970					
04...	1530	107	520	--	6.0
DEC.					
07...	1545	61	650	--	2.0
JAN., 1971					
19...	1125	38	670	--	.0
MAR.					
03...	0935	370	325	--	.5
APR.					
13...	1110	107	525	--	10.0
MAY					
26...	0935	554	360	--	--
JULY					
06...	1620	43	--	--	31.0
AUG.					
16...	1435	14	500	--	29.0
05487100 - SQUAW CR NR INDIANOLA, IOWA (LAT 41 18 LONG 093 36)					
AUG., 1971					
24...	1520	.40	430	--	30.0
05487200 - SOUTH R NR INDIANOLA, IOWA (LAT 41 20 LONG 093 35)					
AUG., 1971					
24...	1600	2.4	480	--	30.0
05487450 - OTTER CR NR MILO, IOWA (LAT 41 17 LONG 093 29)					
AUG., 1971					
24...	1640	2.9	400	--	28.0
05487800 - WHITE BREAST CR AT LUCAS, IOWA (LAT 41 01 LONG 093 28)					
AUG., 1971					
24...	1200	.01	580	7.8	26.5
05487900 - WHITE BREAST CR NR NEWBERN, IOWA (LAT 41 10 LONG 093 21)					
AUG., 1971					
23...	1340	.13	425	--	31.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05488300 - ENGLISH R NR HARVEY, IOWA (LAT 41 20 LONG 092 57)					
AUG., 1971					
23...	1000	.02	900	--	23.0
05488500 - DES MOINES R NEAR TRACY, IOWA (LAT 41 16 53 LONG 092 51 34)					
OCT., 1970					
13...	1000	9060	--	--	16.0
NOV.					
02...	1440	2510	410	--	8.5
DEC.					
07...	1315	2590	775	--	--
JAN., 1971					
12...	1515	1240	--	--	1.0
18...	1320	572	960	--	.0
FEB.					
24...	1005	26100	--	--	1.0
MAR.					
01...	1210	25700	250	--	1.5
25...	1435	20600	--	--	3.0
APR.					
12...	1555	8820	595	--	13.5
MAY					
27...	1640	6040	450	--	14.0
JULY					
06...	1220	4190	--	--	20.5
AUG.					
16...	1325	687	605	--	23.0
05488550 - CEDAR CR AT MELROSE, IOWA (LAT 40 58 LONG 093 03)					
AUG., 1971					
23...	1700	.02	700	7.8	30.5
05488600 - CEDAR CR NR ALBIA, IOWA (LAT 41 01 LONG 092 53)					
AUG., 1971					
23...	1435	.18	490	7.8	34.5
05488700 - CEDAR CR NR LOVILIA, IOWA (LAT 41 07 LONG 092 56)					
AUG., 1971					
23...	1220	.30	460	--	25.0
05489000 - CEDAR CREEK NEAR BUSSEY, IOWA (LAT 41 13 09 LONG 092 54 38)					
NOV., 1970					
02...	1535	94	625	--	7.0
JAN., 1971					
07...	1450	36	725	--	.5
18...	1510	35	800	--	.0
27...	0950	44	--	--	.5
MAR.					
01...	1355	423	350	--	1.5
APR.					
13...	0745	53	705	--	3.5
MAY					
27...	1130	49	540	--	13.5
JULY					
06...	1430	10	--	--	22.0
AUG.					
16...	1430	3.3	390	--	28.0
05489300 - N AVERY CR NR CHILLICOTHE, IOWA (LAT 41 06 LONG 092 33)					
AUG., 1971					
25...	1715	.04	670	7.4	28.5
05489400 - S AVERY CR AT CHILLICOTHE, IOWA (LAT 41 05 LONG 092 32)					
AUG., 1971					
25...	1605	.03	--	--	30.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
DES MOINES RIVER BASIN--CONTINUED					
05489500 - DES MOINES R AT OTTUMWA, IOWA (LAT 41 00 39 LONG 092 24 40)					
OCT., 1970					
13...	1300	9200	--	--	15.0
20...	1435	2620	400	--	13.0
FEB., 1971					
17...	1410	1210	--	--	.0
MAR.					
26...	0930	18200	--	--	2.0
APR.					
05...	1455	17600	420	--	5.0
JUNE					
21...	1225	4730	515	--	26.0
AUG.					
02...	1400	1880	660	--	22.0
SEP.					
13...	1325	593	650	--	--
05489900 - SOAP CR NR ASH GROVE, IOWA (LAT 40 51 LONG 092 36)					
AUG., 1971					
25...	0935	.04	550	7.7	23.5
05490100 - SOAP CR NR FLORIS, IOWA (LAT 40 53 37 LONG 092 15 53)					
AUG., 1971					
25...	1130	4.7	580	7.6	24.5
05490300 - CHEQUEST CR NR TROY, IOWA (LAT 40 47 17 LONG 092 11 01)					
AUG., 1971					
25...	1235	.84	550	8.3	26.0
05490400 - CHEQUEST CR NR PITTSBURG, IOWA (LAT 40 45 41 LONG 092 00 57)					
AUG., 1971					
25...	1040	.02	560	7.9	25.0
05490500 - DES MOINES R AT KEOSAUQUA, IOWA (LAT 40 43 40 LONG 091 57 35)					
OCT., 1970					
21...	0940	3070	460	--	12.0
DEC.					
02...	0905	4920	--	--	1.5
JAN., 1971					
26...	1220	1210	--	--	.5
29...	1055	1040	--	--	.0
FEB.					
23...	1730	26000	--	--	.0
APR.					
06...	1000	18000	420	--	6.0
MAY					
18...	1230	4660	550	--	12.0
JUNE					
21...	1800	6020	510	--	--
AUG.					
03...	0955	1670	580	--	21.5
SEP.					
14...	1025	562	540	--	--
05490700 - SUGAR CR NR CHARLESTON, IOWA (LAT 40 34 LONG 091 34)					
AUG., 1971					
25...	1515	.02	650	7.9	28.5
FOX RIVER BASIN					
05494500 - FOX R AT CANTRIL, IOWA (LAT 40 39 LONG 092 03)					
AUG., 1971					
25...	1355	6.2	520	7.8	29.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
BIG SIOUX RIVER BASIN					
06483100 - ROCK R NR ROCK RAPIDS, IOWA (LAT 43 30 01 LONG 096 11 03)					
SEP., 1971					
01...	1040	11	800	7.6	21.0
06483260 - KANARANZI CR NR ROCK RAPIDS, IOWA (LAT 43 28 LONG 096 09)					
SEP., 1971					
01...	1125	3.5	710	7.8	24.0
06483270 - ROCK RIVER AT ROCK RAPIDS, IOWA (LAT 43 26 13 LONG 096 09 58)					
OCT., 1970					
06...	0910	13	625	--	18.0
NOV.					
03...	0835	96	760	--	4.5
DEC.					
01...	1255	113	825	--	.5
JAN., 1971					
11...	1510	16	700	7.6	.0
FEB.					
01...	1545	12	900	--	.0
25...	0925	283	440	--	.0
MAR.					
17...	0855	340	340	--	.5
APR.					
05...	1615	262	625	--	7.0
MAY					
04...	1140	119	600	--	15.0
JUNE					
01...	1415	49	--	--	17.5
JULY					
08...	1410	125	700	--	25.0
AUG.					
02...	1440	38	640	--	25.0
SEP.					
01...	1215	13	700	7.7	23.0
06483280 - TOM CR AT ROCK RAPIDS, IOWA (LAT 43 26 LONG 096 09)					
SEP., 1971					
01...	1135	.06	770	7.5	23.5
06483300 - ROCK R BELOW ROCK RAPIDS, IOWA (LAT 43 24 LONG 096 09)					
SEP., 1971					
01...	1355	16	780	7.5	24.0
06483330 - MUD CR NR DOON, IOWA (LAT 43 17 LONG 096 15)					
SEP., 1971					
01...	1235	.77	940	7.7	23.0
06483340 - ROCK R NR DOON, IOWA (LAT 43 16 LONG 096 15)					
SEP., 1971					
01...	1203	22	670	7.7	21.5
06483360 - L ROCK R NR LITTLE ROCK, IOWA (LAT 43 30 00 LONG 095 50 57)					
SEP., 1971					
01...	1155	.11	640	8.1	21.5
06483380 - L ROCK R AT LITTLE ROCK, IOWA (LAT 43 26 LONG 095 54)					
SEP., 1971					
01...	1255	1.1	1000	8.1	23.0
06483400 - L ROCK R NR GEORGE, IOWA (LAT 43 19 LONG 096 02)					
SEP., 1971					
01...	1350	3.1	700	8.1	25.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
BIG SIOUX RIVER BASIN--CONTINUED					
06483460 - OTTER CR NR ASHTON, IOWA (LAT 43 20 LONG 095 46)					
SEP., 1971					
01...	1100	1.3	1900	8.3	21.5
06483470 - OTTER CR NR MATLOCK, IOWA (LAT 43 16 LONG 095 55)					
SEP., 1971					
01...	0955	2.0	1050	7.8	19.5
06483480 - OTTER CR NR GEORGE, IOWA (LAT 43 17 LONG 096 03)					
SEP., 1971					
01...	1440	3.6	860	8.3	26.0
06483490 - L ROCK R NR OOON, IOWA (LAT 43 16 LONG 096 14)					
SEP., 1971					
01...	1130	9.3	750	7.7	21.0
06483500 - ROCK RIVER AT ROCK VALLEY, IOWA (LAT 43 11 58 LONG 096 20 22)					
OCT., 1970					
05...	1650	25	625	--	21.0
NOV.					
03...	1015	149	750	--	5.0
DEC.					
01...	1140	221	850	--	.5
JAN., 1971					
11...	1340	27	550	7.7	.0
FEB.					
01...	1255	20	900	--	.0
MAR.					
17...	1220	699	360	--	2.0
APR.					
06...	0945	535	680	--	5.5
MAY					
04...	0940	200	725	--	14.5
JUNE					
02...	0815	120	--	--	15.0
JULY					
08...	1600	259	700	--	25.0
AUG.					
02...	1325	93	650	--	23.0
SEP.					
01...	1040	30	660	7.5	22.0
06484100 - SIXMILE CR NR HAWARDEN, IOWA (LAT 43 02 LONG 096 24)					
SEP., 1971					
01...	0945	2.2	800	7.5	20.0
06484150 - SIXMILE CR NR CHATSWORTH, IOWA (LAT 42 56 LONG 096 29)					
SEP., 1971					
01...	0910	5.0	840	7.6	19.5
06484200 - INDIAN CR NR CHATSWORTH, IOWA (LAT 42 53 LONG 096 30)					
SEP., 1971					
01...	0840	3.6	1000	7.8	18.0
06485800 - BROKEN KETTLE CR NR ADAVILLE, IOWA (LAT 42 43 20 LONG 096 28 08)					
SEP., 1971					
02...	0945	3.2	820	8.0	19.0
06485900 - BROKEN KETTLE CR NR SIOUX CITY, IOWA (LAT 42 38 16 LONG 096 30 28)					
SEP., 1971					
02...	1030	4.7	750	7.7	21.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
FLOYD RIVER BASIN					
06600020 - FLOYD R NR SHELDON, IOWA (LAT 43 12 19 LONG 095 49 22)					
SEP., 1971					
02...	1005	1.2	700	8.0	20.0
06600040 - L FLOYD R NR SHELDON, IOWA (LAT 43 09 25 LONG 095 52 02)					
SEP., 1971					
02...	0918	.48	880	7.8	21.5
06600060 - FLOYD R BELOW SHELDON, IOWA (LAT 43 07 38 LONG 095 53 27)					
SEP., 1971					
02...	0845	.73	1500	8.0	20.0
06600100 - FLOYD RIVER AT ALTON, IOWA (LAT 42 58 55 LONG 096 00 03)					
OCT., 1970					
06...	1140	2.6	1500	--	19.0
NOV.					
03...	1235	11	1150	--	5.0
DEC.					
01...	1445	14	1300	--	1.5
JAN., 1971					
12...	1015	1.8	1300	7.2	.0
FEB.					
02...	1030	1.0	1700	--	.0
24...	1440	93	600	--	1.5
APR.					
05...	1405	52	800	--	10.0
MAY					
03...	1200	15	950	--	13.0
JUNE					
02...	1215	12	--	--	21.0
JULY					
08...	1130	34	900	--	25.0
AUG.					
02...	1630	12	710	--	25.0
SEP.					
02...	1145	3.2	1200	7.4	22.0
06600120 - DEEP CR NR OYENS, IOWA (LAT 42 49 26 LONG 096 06 53)					
SEP., 1971					
02...	1010	3.0	900	7.6	22.0
06600140 - WILLOW CR NR OYENS, IOWA (LAT 42 49 42 LONG 096 06 54)					
SEP., 1971					
02...	0945	.78	690	7.4	20.0
06600160 - DEEP CR AT LE MARS, IOWA (LAT 42 48 15 LONG 096 09 28)					
SEP., 1971					
02...	1050	4.5	650	7.5	23.0
06600180 - FLOYD R AT LE MARS, IOWA (LAT 42 48 02 LONG 096 09 28)					
SEP., 1971					
02...	1120	13	730	7.5	22.0
06600200 - FLOYD R NR MERRILL, IOWA (LAT 42 44 59 LONG 096 12 32)					
SEP., 1971					
02...	0940	19	980	7.6	20.0
06600250 - WB FLOYD R NR MIDDLEBURG, IOWA (LAT 43 06 49 LONG 096 04 52)					
SEP., 1971					
01...	1325	.14	930	7.3	22.0

DATE	TIME	DIS-CHARGE (CFS)	SPECI-FIC COND-UCTANCE (MICRO-MHOS)	PH (UNITS)	TEMP-ERATURE (DEG C)
FLOYD RIVER BASIN--CONTINUED					
06600300 - WEST BRANCH FLOYD RIVER NR STRUBLE, IOWA (LAT 42 55 15 LONG 096 10 30)					
OCT., 1970					
06...	1215	6.0	--	--	19.0
NOV.					
03...	1340	14	1000	--	4.5
DEC.					
02...	0940	11	1000	--	.5
JAN., 1971					
12...	1010	2.8	750	7.7	.0
FEB.					
24...	1435	60	440	--	.0
MAR.					
16...	1430	13	1000	--	5.0
APR.					
05...	1250	20	1100	--	8.0
MAY					
03...	1330	12	900	--	16.5
JUNE					
02...	1330	8.0	--	--	22.0
08...	1345	1700	300	--	21.0
JULY					
08...	1040	25	1000	--	21.0
AUG.					
02...	1740	10	700	--	22.0
SEP.					
02...	0830	3.4	850	7.8	19.0
06600400 - W8 FLOYD R NR MERRILL, IOWA (LAT 42 44 59 LONG 096 14 26)					
SEP., 1971					
02...	0905	8.1	740	7.9	19.5
MONONA-HARRISON DITCH BASIN					
06601500 - BIG WHISKEY SLOUGH NR KINGSLEY, IOWA (LAT 42 40 LONG 095 52)					
SEP., 1971					
14...	1035	1.8	740	7.7	17.0
06601600 - WF L SIOUX R NR FIELDING, IOWA (LAT 42 39 LONG 095 52)					
SEP., 1971					
14...	1105	3.9	640	7.8	16.5
06601700 - WF L SIOUX R NR KINGLEY, IOWA (LAT 42 35 LONG 096 00)					
SEP., 1971					
14...	1200	8.5	650	7.8	18.5
06601800 - MUD CR AT MOVILLE, IOWA (LAT 42 29 28 LONG 096 05 24)					
SEP., 1971					
14...	1100	.74	650	8.0	16.0
06601900 - WF L SIOUX R AT MOVILLE, IOWA (LAT 42 28 30 LONG 096 04 39)					
SEP., 1971					
14...	1020	12	600	7.8	16.0
06602200 - ELLIOT CR NR BRONSON, IOWA (LAT 42 23 53 LONG 096 14 05)					
SEP., 1971					
14...	0945	.62	600	7.7	16.0
06602250 - BIG WHISKEY CR NR BRONSON, IOWA (LAT 42 24 04 LONG 096 14 29)					
SEP., 1971					
14...	0915	.89	600	7.8	15.0
06602300 - WOLF CR NR HOLLY SPRINGS, IOWA (LAT 42 18 06 LONG 096 01 10)					
SEP., 1971					
14...	1210	1.3	540	7.9	19.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
MONOMA-HARRISON DITCH BASIN--CONTINUED					
06602400 - MONONA-HARRISON DITCH NR TURIN, IOWA (LAT 41 57 52 LONG 095 59 30)					
OCT., 1970					
12...	1345	372	480	--	10.5
NOV.					
12...	1145	138	740	9.4	4.0
DEC.					
02...	1130	150	725	--	5.0
JAN., 1971					
13...	1115	52	800	--	.0
FEB.					
10...	1255	42	1000	7.6	.0
MAR.					
12...	1320	1870	240	--	2.0
APR.					
09...	1425	130	750	--	11.0
MAY					
05...	1040	103	700	--	14.0
JUNE					
03...	1110	94	700	--	17.5
08...	1045	1390	300	--	18.0
JULY					
02...	1335	140	640	--	25.0
AUG.					
02...	1420	74	700	--	24.0
SEP.					
10...	1345	45	690	--	23.0
14...	1515	45	750	7.7	20.0
LITTLE SIOUX RIVER BASIN					
06603600 - L SIOUX R NR MONTGOMERY, IOWA (LAT 43 26 LONG 095 15)					
AUG., 1971					
09...	1345	.79	860	7.6	26.0
06603700 - WF L SIOUX R NR LAKE PARK, IOWA (LAT 43 29 LONG 095 17)					
AUG., 1971					
09...	1145	1.9	750	7.8	26.0
06603800 - WF L SIOUX R NR MONTGOMERY, IOWA (LAT 43 25 LONG 095 16)					
AUG., 1971					
09...	1300	2.3	790	7.7	26.0
06603900 - L SIOUX R NR MILFORD, IOWA (LAT 43 19 LONG 095 11)					
AUG., 1971					
09...	1555	7.0	650	7.6	27.0
06604400 - OKOBOJI LAKE OUTLET NR MILFORD, IOWA (LAT 43 19 LONG 095 10)					
AUG., 1971					
09...	1525	6.9	570	7.6	26.0
06604500 - OCHEYEDAN R NR BIGELOW, MINN (LAT 43 27 LONG 095 37)					
AUG., 1971					
09...	1030	.86	670	8.0	26.0
06604600 - OCHEYEDAN R NR MAY CITY, IOWA (LAT 43 17 LONG 095 28)					
AUG., 1971					
10...	0810	.52	560	7.8	24.5
06604700 - OCHEYEDAN R NR MAY CITY, IOWA (LAT 43 16 LONG 095 27)					
AUG., 1971					
10...	0845	12	700	7.9	24.5
06604800 - STONEY CR NR FOSTORIA, IOWA (LAT 43 14 LONG 095 20)					
AUG., 1971					
10...	0930	4.1	600	7.7	25.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
LITTLE SIOUX RIVER BASIN--CONTINUED					
06604900 - STONEY CR NR EVERLY, IOWA (LAT 43 09 22 LONG 095 14 58)					
AUG., 1971					
10...	1430	7.4	580	7.8	26.0
06605000 - OCHEYEDAN R NR SPENCER, IOWA (LAT 43 07 44 LONG 095 12 37)					
AUG., 1971					
10...	1505	30	660	7.9	26.0
06605100 - L SIOUX R AT SPENCER, IOWA (LAT 43 08 13 LONG 095 08 39)					
AUG., 1971					
10...	1345	60	630	8.1	25.0
06605200 - BIG MUDDY CR NR LANGDON, IOWA (LAT 43 11 49 LONG 095 04 11)					
AUG., 1971					
10...	1020	2.8	580	8.1	25.0
06605300 - BIG MUDDY CR NR SPENCER, IOWA (LAT 43 08 28 LONG 095 05 14)					
AUG., 1971					
10...	1210	6.5	740	7.4	25.0
06605400 - PICKEREL RUN NR SPENCER, IOWA (LAT 43 12 LONG 094 58)					
AUG., 1971					
10...	1105	8.6	350	7.8	25.0
06605500 - LOST ISLAND OUTLET NR DICKENS, IOWA (LAT 43 07 07 LONG 095 01 58)					
AUG., 1971					
10...	1140	28	475	8.2	25.0
06605600 - LITTLE SIOUX RIVER AT GILLETT GROVE, IOWA (LAT 43 01 06 LONG 095 02 34)					
OCT., 1970					
20...	1505	323	950	--	5.5
DEC.					
04...	1525	282	900	--	6.5
JAN., 1971					
12...	0935	111	760	--	.0
MAR.					
10...	1400	543	560	--	.0
15...	1635	5230	--	--	1.0
29...	1250	2900	--	--	1.0
APR.					
08...	1005	1720	590	--	9.0
MAY					
17...	1345	252	680	--	18.0
JUNE					
10...	1124	4590	510	--	19.0
24...	1055	780	--	--	24.5
AUG.					
13...	1420	101	725	--	30.0
SEP.					
20...	1020	43	950	--	11.0
06605800 - WILLOW CR NR GREENVILLE, IOWA (LAT 42 59 LONG 095 09)					
AUG., 1971					
10...	1610	7.7	620	7.6	26.0
06605900 - WATERMAN CR NR HARTLEY, IOWA (LAT 43 05 LONG 095 27)					
AUG., 1971					
11...	0825	.17	630	7.9	23.0
06606000 - WATERMAN CR NR SUTHERLAND, IOWA (LAT 42 57 LONG 095 25)					
AUG., 1971					
11...	1110	5.2	580	7.7	25.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
LITTLE SIOUX RIVER BASIN--CONTINUED					
06606100 - L SIOUX R NR SUTHERLAND, IOWA (LAT 42 56 LONG 095 25)					
AUG., 1971					
11...	1030	185	610	7.8	25.0
06606200 - MILL CR NR PAULINA, IOWA (LAT 43 02 LONG 095 43)					
AUG., 1971					
11...	0920	.25	590	8.2	24.0
06606300 - MILL CR NR CHEROKEE, IOWA (LAT 42 47 LONG 095 33)					
AUG., 1971					
11...	1230	13	560	8.2	26.0
06606400 - L SIOUX R AT CHEROKEE, IOWA (LAT 42 45 LONG 095 32)					
AUG., 1971					
11...	1330	240	460	7.8	26.0
06606500 - PIERSON CR NR CORRECTIONVILLE, IOWA (LAT 42 29 LONG 095 48)					
SEP., 1971					
14...	0945	1.2	700	7.8	18.0
06606600 - LITTLE SIOUX RIVER AT CORRECTIONVILLE, IOWA (LAT 42 28 20 LONG 095 47 49)					
OCT., 1970					
15...	1500	794	--	--	8.0
NOV.					
13...	1020	1070	800	9.0	5.5
DEC.					
30...	1320	356	1000	--	.0
JAN., 1971					
20...	1405	194	950	--	.0
FEB.					
03...	1045	159	1000	--	.0
MAR.					
03...	1020	1490	420	--	.0
19...	1350	5250	400	--	.5
APR.					
15...	1320	1740	675	--	11.0
MAY					
04...	1140	875	700	--	13.5
JUNE					
04...	1245	474	650	--	17.0
JULY					
07...	1030	2810	370	--	24.0
AUG.					
03...	1310	502	650	--	22.5
SEP.					
09...	1220	129	790	--	21.0
14...	0820	118	820	7.8	19.0
06606800 - MAPLE R NR AURELIA, IOWA (LAT 42 43 LONG 095 29)					
AUG., 1971					
11...	1410	2.6	540	8.0	25.0
06606900 - MAPLE R NR IDA GROVE, IOWA (LAT 42 21 55 LONG 095 27 27)					
SEP., 1971					
14...	0943	14	620	7.9	15.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
LITTLE SIOUX RIVER BASIN--CONTINUED					
06607000 - ODEBOLT CREEK NEAR ARTHUR, IOWA (LAT 42 20 10 LONG 095 22 52)					
OCT., 1970					
09...	1015	38	1080	--	3.5
21...	1220	2.2	1000	--	14.0
DEC.					
01...	1045	4.4	1040	--	5.5
JAN., 1971					
12...	1255	1.1	1000	--	.0
FEB.					
25...	1445	68	520	--	--
APR.					
07...	1225	8.1	750	--	9.0
MAY					
17...	1610	3.8	720	--	20.0
JUNE					
10...	1020	14	440	--	25.0
25...	1235	3.6	750	--	25.0
JULY					
13...	1210	3.1	700	--	25.0
AUG.					
11...	1145	1.5	840	--	22.0
SEP.					
07...	1015	1.0	850	--	25.0
06607100 - ODEBOLT CR AT IDA GROVE, IOWA (LAT 42 20 49 LONG 095 28 03)					
SEP., 1971					
14...	0845	1.5	740	7.9	14.0
06607200 - MAPLE RIVER AT MAPLETON, IOWA (LAT 42 09 28 LONG 095 48 27)					
OCT., 1970					
13...	1230	14	--	--	9.0
NOV.					
06...	1215	123	--	--	6.0
DEC.					
14...	1225	90	810	--	.0
JAN., 1971					
06...	1420	27	810	--	.0
FEB.					
03...	1250	39	740	--	.0
MAR.					
12...	1130	3060	210	--	1.0
APR.					
08...	1315	186	700	--	11.0
MAY					
04...	1430	114	650	--	14.5
JUNE					
24...	1445	118	650	--	17.5
08...	1215	2290	240	--	20.5
JULY					
07...	1330	189	625	--	26.0
AUG.					
03...	1455	78	640	--	27.0
SEP.					
09...	1435	34	600	--	25.0
14...	1130	32	620	7.9	18.0
06607400 - MAPLE R NR TURIN, IOWA (LAT 42 01 LONG 095 58)					
SEP., 1971					
14...	1210	36	600	7.8	20.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
LITTLE SIOUX RIVER BASIN--CONTINUED					
06607500 - LITTLE SIOUX RIVER NR TURIN, IOWA (LAT 41 57 52 LONG 095 58 21)					
OCT., 1970					
08...	1210	730	--	--	21.0
NOV.					
12...	1330	1010	825	9.2	4.5
DEC.					
09...	1155	657	--	--	1.0
JAN., 1971					
13...	1235	228	750	7.5	.0
FEB.					
10...	1130	184	1000	7.6	.0
MAR.					
09...	1205	1610	600	7.7	1.0
APR.					
14...	1220	2200	700	--	11.0
MAY					
12...	1220	862	600	--	15.0
JUNE					
09...	1230	7380	280	6.8	20.0
JULY					
15...	1120	1970	720	7.6	23.0
AUG.					
11...	1050	411	650	8.4	24.5
SEP.					
08...	1125	206	680	8.0	23.0
14...	1300	192	600	7.8	20.0
SOLDIER RIVER BASIN					
06608300 - SOLDIER R NR RICKETTS, IOWA (LAT 42 12 LONG 095 35)					
AUG., 1971					
11...	1350	3.8	490	7.7	24.5
06608350 - SOLOIER R NR UTE, IOWA (LAT 42 03 LONG 095 43)					
AUG., 1971					
11...	1030	6.1	480	7.6	24.5
06608400 - E SOLOIER R NR UTE, IOWA (LAT 42 03 LONG 095 42)					
AUG., 1971					
11...	1225	3.1	540	7.7	26.5
06608500 - SOLOIER RIVER AT PISGAH, IOWA (LAT 41 49 52 LONG 095 55 50)					
OCT., 1970					
02...	0935	37	550	--	20.0
NOV.					
12...	1040	34	660	9.1	5.0
DEC.					
09...	0930	29	--	--	1.0
JAN., 1971					
13...	1400	8.0	760	7.4	.0
FEB.					
10...	1005	13	950	7.6	.0
17...	1500	405	270	--	1.0
MAR.					
09...	1020	60	640	8.0	.5
12...	1400	1390	180	--	3.0
APR.					
14...	1015	47	700	--	10.5
MAY					
12...	1010	46	650	--	11.5
JUNE					
09...	0945	89	265	7.3	20.0
JULY					
15...	0935	27	650	7.9	21.5
AUG.					
11...	1020	14	530	7.8	20.5
SEP.					
08...	0950	13	660	7.9	19.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
BOYER RIVER BASIN					
06609260 - BOYER R NR EARLY, IOWA (LAT 42 28 LONG 095 11)					
AUG., 1971					
17...	0840	3.1	590	8.0	22.0
06609300 - E BOYER R AT VAIL, IOWA (LAT 42 04 LONG 095 12)					
AUG., 1971					
17...	0810	2.9	650	8.1	18.9
06609350 - E BOYER R AT DENISON, IOWA (LAT 42 01 LONG 095 22)					
AUG., 1971					
17...	0910	6.2	690	8.2	20.0
06609400 - BOYER R NR DENISON, IOWA (LAT 42 00 LONG 095 23)					
AUG., 1971					
17...	1010	20	1350	8.2	21.0
06609500 - BOYER RIVER AT LOGAN, IOWA (LAT 41 38 31 LONG 095 47 04)					
OCT., 1970					
06...	1130	30	1160	8.1	18.0
NOV.					
03...	1215	72	950	8.3	4.5
30...	1100	74	950	8.9	1.0
JAN., 1971					
06...	1350	15	1400	7.2	.0
FEB.					
05...	1250	19	700	7.2	.0
MAR.					
01...	1110	395	540	8.5	1.5
12...	1250	3000	175	7.5	1.5
APR.					
06...	1320	193	700	7.8	11.0
MAY					
05...	1130	126	700	7.9	15.5
JUNE					
03...	1105	107	760	8.5	22.0
JULY					
01...	0945	319	390	7.4	23.0
AUG.					
04...	1440	56	800	8.4	24.0
17...	1120	33	590	8.4	25.0
SEP.					
03...	1145	25	880	8.3	25.5
06609550 - BOYER R NR MISSOURI VALLEY, IOWA (LAT 41 31 LONG 095 54)					
AUG., 1971					
18...	1000	32	670	8.3	23.5
06609580 - WILLOW CR NR WOODBINE, IOWA (LAT 41 48 LONG 095 45)					
AUG., 1971					
17...	0650	1.4	560	7.7	20.0
06609600 - WILLOW CR NR LOGAN, IOWA (LAT 41 33 LONG 095 53)					
AUG., 1971					
17...	1245	3.3	560	7.8	29.5
06609620 - WILLOW CR NR MISSOURI VALLEY, IOWA (LAT 41 31 LONG 095 54)					
AUG., 1971					
19...	1055	1.9	560	8.5	25.0
PIGEON CREEK BASIN					
06609900 - PIGEON CR EAST OF LOVELAND, IOWA (LAT 41 28 38 LONG 095 42 13)					
AUG., 1971					
18...	1245	1.1	540	7.8	24.0
06609950 - PIGEON CR NR CRESCENT, IOWA (LAT 41 19 47 LONG 095 53 19)					
AUG., 1971					
18...	1355	4.1	620	8.0	26.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
INDIAN CREEK BASIN					
06610500 - INDIAN CREEK AT COUNCIL BLUFFS, IOWA (LAT 41 17 32 LONG 095 49 59)					
OCT., 1970					
22...	1340	.46	550	--	13.0
NOV.					
06...	1415	.58	615	--	7.0
20...	1505	.56	--	--	5.0
DEC.					
03...	1105	.60	710	--	5.5
24...	1040	.35	--	--	.0
JAN., 1971					
12...	1540	.39	800	--	.0
FEB.					
08...	1405	.41	860	--	.0
MAR.					
18...	1025	1.8	720	--	3.0
APR.					
06...	1445	1.1	650	--	12.0
20...	0915	.86	680	--	14.5
MAY					
05...	1100	.89	700	--	15.0
11...	1033	22	570	--	15.0
18...	0905	7.8	440	--	15.0
JUNE					
03...	1230	1.4	480	--	20.0
29...	1615	.41	600	--	25.5
JULY					
14...	1425	.50	600	--	22.5
30...	1215	.29	630	--	15.0
AUG.					
13...	1305	.38	--	--	25.0
26...	1445	.10	--	--	22.0
SEP.					
08...	1215	.29	450	--	21.0
21...	1105	.03	750	--	12.5
MOSQUITO CREEK BASIN					
06610520 - MOSQUITO CREEK NR EARLING, IOWA (LAT 41 45 10 LONG 095 27 50)					
OCT., 1970					
26...	0950	.22	610	--	17.5
NOV.					
03...	1015	1.8	480	8.2	3.0
30...	1240	1.2	650	--	1.0
DEC.					
30...	1055	.05	900	--	.0
FEB., 1971					
10...	1230	.54	800	--	.0
18...	1300	763	170	--	1.0
MAR.					
05...	1200	9.7	360	--	.0
10...	1350	11	410	--	.5
12...	1505	808	200	7.4	1.5
30...	1115	4.0	540	--	5.0
APR.					
06...	1100	1.9	650	--	6.0
MAY					
05...	1335	1.6	550	--	18.0
13...	1822	1.7	500	--	19.5
JUNE					
23...	1330	1.4	580	--	24.0
JULY					
01...	1240	3.9	420	--	23.0
AUG.					
04...	1150	.59	550	--	24.0
17...	1350	.17	520	8.0	29.0
SEP.					
03...	1030	.44	480	--	23.0
06610550 - MOSQUITO CR PORTSMOUTH, IOWA (LAT 41 39 LONG 095 31)					
AUG., 1971					
17...	1315	.88	580	8.1	29.0
06610600 - MOSQUITO CR AT ARDLA, IOWA (LAT 41 27 09 LONG 095 36 37)					
AUG., 1971					
17...	1150	3.5	600	8.3	23.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
MOSQUITO CREEK BASIN--CONTINUED					
06610650 - MOSQUITO CR NR COUNCIL BLUFFS, IOWA (LAT 41 16 09 LONG 095 48 22)					
AUG., 1971					
17...	1130	10	650	8.1	24.0
KEG CREEK BASIN					
06805700 - KEG CR AT MINDEN, IOWA (LAT 41 27 57 LONG 095 32 15)					
AUG., 1971					
17...	1240	1.3	600	8.2	23.0
06805800 - KEG CR NR DUMERIES, IOWA (LAT 41 11 20 LONG 095 40 59)					
AUG., 1971					
17...	1035	8.8	650	8.0	19.5
06805900 - KEG CR NR GLENWOOD, IOWA (LAT 41 00 56 LONG 095 45 59)					
AUG., 1971					
17...	0905	15	680	8.0	21.0
NISHNABOTNA RIVER BASIN					
06807260 - W NISHNABOTNA R NR MANNING, IOWA (LAT 41 53 LONG 095 05)					
AUG., 1971					
30...	1120	5.2	800	7.8	20.5
06807280 - WF W NISHNABOTNA R NR MANILLA, IOWA (LAT 41 52 LONG 095 15)					
AUG., 1971					
30...	1008	1.4	660	7.5	20.0
06807300 - WF W NISHNABOTNA R AT HARLAN, IOWA (LAT 41 40 LONG 095 18)					
AUG., 1971					
30...	0855	2.6	660	8.2	18.0
06807320 - W NISHNABOTNA R AT HARLAN, IOWA (LAT 41 38 LONG 095 18)					
AUG., 1971					
30...	0750	7.1	690	7.9	15.5
06807340 - W NISHNABOTNA R NR RED LINE, IOWA (LAT 41 28 LONG 095 21)					
AUG., 1971					
31...	0908	9.9	800	7.9	18.5
06807380 - EB W NISHNABOTNA R NR JACKSONVILLE, IOWA (LAT 41 39 LONG 095 14)					
AUG., 1971					
30...	1315	4.3	630	8.0	23.5
06807400 - EB W NISHNABOTNA R AT AVOCA, IOWA (LAT 41 29 LONG 095 20)					
AUG., 1971					
31...	0815	5.4	600	7.9	18.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NISHNABOTNA RIVER BASIN--CONTINUED					
06807410 - WEST NISHNABOTNA RIVER AT HANCOCK, IOWA (LAT 41 23 24 LONG 095 22 17)					
OCT., 1970					
21...	1100	26	720	--	11.5
NOV.					
24...	1115	13	1100	--	.0
DEC.					
22...	1120	15	980	8.7	.0
JAN., 1971					
20...	1245	2.6	890	8.1	.0
MAR.					
11...	1050	1310	250	--	3.0
25...	1040	136	650	--	2.0
APR.					
23...	1535	71	610	--	13.5
MAY					
20...	0930	177	590	--	12.5
JUNE					
21...	0824	91	625	--	22.0
JULY					
20...	1215	47	600	--	24.0
AUG.					
24...	0955	23	680	7.8	23.0
SEP.					
22...	1355	12	700	--	18.0
06807420 - GRAYBILL CR NR MACEDONIA, IOWA (LAT 41 11 LONG 095 23)					
AUG., 1971					
31...	1127	1.6	500	8.1	21.0
06807440 - FARM CR NR MACEDONIA, IOWA (LAT 41 10 LONG 095 23)					
AUG., 1971					
31...	1215	4.4	500	8.2	22.0
06807480 - INDIAN CR NR HASTINGS, IOWA (LAT 41 02 LONG 095 30)					
AUG., 1971					
31...	0710	.75	590	7.4	18.0
06807500 - W NISHNABOTNA R AT WHITE CLOUD, IOWA (LAT 40 59 LONG 095 32)					
AUG., 1971					
31...	1040	41	950	7.5	21.0
06807550 - W NISHNABOTNA R NR MALVERN, IOWA. (LAT 40 58 LONG 095 33)					
AUG., 1971					
31...	0925	42	940	7.8	19.0
06807600 - SILVER CR NR AVOCA, IOWA (LAT 41 25 LONG 095 27)					
AUG., 1971					
31...	1004	.91	550	7.9	19.5
06807650 - SILVER CR NR TREYNOR, IOWA (LAT 41 11 LONG 095 34)					
AUG., 1971					
31...	1325	6.9	550	8.0	24.5
06807800 - M SILVER CR NR TREYNOR, IOWA (LAT 41 11 LONG 095 36)					
AUG., 1971					
31...	1415	5.5	580	8.1	23.5
06807900 - SILVER CR NR MALVERN, IOWA (LAT 40 57 LONG 095 34)					
AUG., 1971					
31...	1000	21	600	7.8	19.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NISHNABOTNA RIVER BASIN--CONTINUED					
06808500 - WEST NISHNABOTNA RIVER AT RANDOLPH, IOWA (LAT 40 52 23 LONG 095 34 48)					
OCT., 1970					
30...	1230	120	610	7.5	9.5
NOV.					
23...	1335	52	620	--	.0
DEC.					
22...	1230	81	780	8.8	.0
JAN., 1971					
25...	1430	65	640	--	.0
FEB.					
26...	1310	563	480	8.4	1.5
MAR.					
24...	1430	353	640	8.6	2.0
APR.					
23...	1010	191	600	7.9	13.0
MAY					
21...	1055	665	560	8.2	16.0
JUNE					
25...	1050	223	440	8.4	27.0
JULY					
23...	1140	136	560	8.2	24.0
AUG.					
26...	1420	73	760	8.4	27.0
SEP.					
23...	1400	51	520	7.8	17.0
06808600 - WALNUT CR NR GRISWOLD, IOWA (LAT 41 17 LONG 095 13)					
AUG., 1971					
31...	1200	.65	480	8.2	24.0
06808700 - WALNUT CR NR HAWTHORNE, IOWA (LAT 40 58 LONG 095 22)					
AUG., 1971					
31...	0840	1.7	530	8.1	17.5
06808800 - WALNUT CR NR RANDOLPH, IOWA (LAT 40 48 LONG 095 34)					
AUG., 1971					
31...	0955	2.8	520	8.0	20.0
06808850 - E NISHNABOTNA R NR AUDUBON, IOWA (LAT 41 47 LONG 094 51)					
AUG., 1971					
30...	0810	.72	540	7.4	15.0
06808900 - E NISHNABOTNA R AT EXIRA, IOWA (LAT 41 35 LONG 094 54)					
AUG., 1971					
30...	0955	2.9	680	7.8	20.0
06809000 - DAVIDS CREEK NR HAMLIN, IOWA (LAT 41 40 25 LONG 094 48 20)					
OCT., 1970					
06...	1205	.11	540	7.8	18.0
NOV.					
03...	1105	1.4	520	7.9	4.0
DEC.					
02...	1320	.76	510	7.6	5.0
MAR., 1971					
04...	1330	12	330	8.2	.5
12...	1015	54	180	--	.5
APR.					
07...	1205	4.8	490	7.9	11.5
MAY					
04...	1030	2.8	480	7.9	9.0
JUNE					
02...	1200	7.7	510	8.4	17.0
JULY					
01...	1100	4.8	540	7.6	22.0
AUG.					
03...	1315	2.3	415	7.2	22.5
30...	0725	.41	550	7.5	15.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NISHNABOTNA RIVER BASIN--CONTINUED					
06809050 - DAVIDS CR AT EXIRA, IOWA (LAT 41 35 LONG 094 53)					
AUG., 1971					
30...	0915	1.5	600	7.8	17.0
06809100 - TROUBLESOME CR NR WIOTA, IOWA (LAT 41 30 LONG 094 51)					
AUG., 1971					
30...	1105	.92	490	8.2	21.0
06809150 - TROUBLESOME CR NR ATLANTIC, IOWA (LAT 41 25 LONG 094 58)					
AUG., 1971					
30...	1230	4.4	420	7.9	23.5
06809200 - E NISHNABOTNA R AT ATLANTIC, IOWA (LAT 41 24 LONG 095 02)					
AUG., 1971					
30...	1325	15	510	7.9	24.0
06809210 - EAST NISHNABOTNA RIVER NR ATLANTIC, IOWA (LAT 41 22 32 LONG 095 04 00)					
OCT., 1970					
06...	1410	13	570	8.5	19.0
NOV.					
03...	1340	27	440	7.8	5.0
DEC.					
02...	1020	36	540	--	4.0
JAN., 1971					
12...	--	8.8	680	--	--
FEB.					
10...	--	8.8	680	--	--
19...	--	6020	--	--	--
MAR.					
12...	1200	1160	190	--	2.0
APR.					
07...	0945	76	500	--	7.0
MAY					
04...	1215	40	550	--	13.5
19...	1255	1240	--	--	15.0
JUNE					
02...	1400	96	500	--	17.5
JULY					
01...	1300	90	450	--	25.0
AUG.					
03...	1050	43	405	--	20.0
31...	0655	15	650	7.8	19.0
06809250 - TURKEY CR EAST OF ATLANTIC, IOWA (LAT 41 23 LONG 094 55)					
AUG., 1971					
30...	1200	.48	420	8.0	22.0
06809300 - TURKEY CR NR ATLANTIC, IOWA (LAT 41 19 LONG 094 04)					
AUG., 1971					
31...	0825	1.2	450	7.9	19.5
06809330 - E NISHNABOTNA R NR LEWIS, IOWA (LAT 41 19 LONG 095 05)					
AUG., 1971					
31...	0905	16	600	7.8	19.5
06809350 - INDIAN CR NR ELKHORN, IOWA (LAT 41 33 LONG 095 08)					
AUG., 1971					
30...	1425	1.5	520	8.0	22.0
06809400 - INDIAN CR NR LEWIS, IOWA (LAT 41 18 LONG 095 08)					
AUG., 1971					
31...	1000	4.5	520	8.1	20.0
06809450 - E NISHNABOTNA R NR GRISWOLD, IOWA (LAT 41 17 LONG 095 08)					
AUG., 1971					
31...	1050	22	540	8.1	21.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NISHNABOTNA RIVER BASIN--CONTINUED					
06809800 - E NISHNABOTNA R NR FARRAGUT, IOWA (LAT 40 45 LONG 095 29)					
AUG., 1971					
31...	1050	48	530	8.0	22.0
06810000 - NISHNABOTNA RIVER ABOVE HAMBURG, IOWA (LAT 40 37 57 LONG 095 37 32)					
OCT., 1970					
22...	1100	175	505	--	13.5
NOV.					
23...	1205	35	620	--	.0
DEC.					
22...	1100	194	620	--	.5
JAN., 1971					
25...	1230	143	580	--	.0
MAR.					
23...	1320	932	500	--	3.5
APR.					
21...	1145	468	540	--	16.5
MAY					
20...	1330	2190	320	--	16.0
JUNE					
24...	1020	415	550	--	27.0
JULY					
22...	1125	228	500	--	24.0
AUG.					
26...	1135	130	660	--	23.5
SEP.					
23...	1205	39	650	--	15.5
TARKIO RIVER BASIN					
06811840 - TARKIO RIVER AT STANTON, IOWA (LAT 40 58 52 LONG 095 06 32)					
OCT., 1970					
22...	1240	2.9	480	--	14.5
NOV.					
25...	1405	3.9	500	--	3.0
DEC.					
22...	1415	2.6	490	--	.0
JAN., 1971					
27...	1100	2.0	--	--	.0
FEB.					
18...	1130	254	--	--	.0
MAR.					
05...	1030	68	240	--	1.5
23...	1310	12	440	--	4.0
APR.					
22...	1520	4.1	420	--	13.0
MAY					
19...	1435	37	360	--	16.0
JUNE					
23...	1135	6.2	440	--	26.0
JULY					
20...	1245	2.0	400	--	25.0
AUG.					
24...	1000	.07	550	7.8	25.0
SEP.					
22...	1020	.04	690	--	16.0
06811860 - TARKIO R NR COBURG, IOWA (LAT 40 54 LONG 095 08)					
AUG., 1971					
24...	0850	.40	480	7.6	23.0
06811880 - E TARKIO CR NR YORKTOWN, IOWA (LAT 40 43 LONG 095 12)					
AUG., 1971					
24...	0835	.70	480	7.9	23.0
06811900 - TARKIO R NR YORKTOWN, IOWA (LAT 40 43 LONG 095 13)					
AUG., 1971					
24...	0805	1.5	460	7.9	23.5
06812000 - TARKIO R AT BLANCHARD, IOWA (LAT 40 36 LONG 095 14)					
AUG., 1971					
24...	1020	2.8	500	8.2	23.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
TARKIO RIVER BASIN--CONTINUED					
06812300 - W TARKIO CR NR COIN, IOWA (LAT 40 41 LONG 095 18)					
AUG., 1971					
24...	0910	.29	520	7.9	23.0
06812400 - W TARKIO CR NR NORTHBORO, IOWA (LAT 40 35 LONG 095 21)					
AUG., 1971					
24...	0950	.88	520	8.0	23.0
NODAWAY RIVER BASIN					
06816300 - W NODAWAY R NR CUMBERLAND, IOWA (LAT 41 12 LONG 094 52)					
SEP., 1971					
14...	0830	.26	490	7.2	14.0
06816350 - SEVENMILE CR NR LYMAN, IOWA (LAT 41 15 LONG 094 59)					
AUG., 1971					
24...	0655	1.7	300	7.8	20.0
SEP.					
14...	0750	.81	350	7.7	14.0
06816400 - SEVENMILE CR NR MORTON MILL, IOWA (LAT 41 06 LONG 095 00)					
SEP., 1971					
14...	1525	11	330	8.0	24.5
06816550 - W NODAWAY R NR VILLISCA, IOWA (LAT 40 55 LONG 095 00)					
AUG., 1971					
24...	0755	14	390	7.7	23.0
SEP.					
14...	1315	14	360	8.2	23.0
06816600 - M NODAWAY R NR BRIDGEWATER, IOWA (LAT 41 10 LONG 094 39)					
SEP., 1971					
14...	0935	.02	430	7.4	14.5
06816700 - WF M NODAWAY R NR FONTANELLE, IOWA (LAT 41 19 LONG 094 39)					
SEP., 1971					
14...	1105	.02	470	7.6	17.0
06816800 - WF M NODAWAY R NR BRIDGEWATER, IOWA (LAT 41 11 LONG 094 39)					
SEP., 1971					
14...	0855	.88	520	7.3	15.0
06816900 - M NODAWAY R NR VILLISCA, IOWA (LAT 40 55 LONG 094 59)					
AUG., 1971					
24...	0700	11	500	7.5	25.0
SEP.					
14...	1420	5.4	500	8.0	23.0

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
NODAWAY RIVER BASIN--CONTINUED					
06817000 - NODAWAY RIVER AT CLARINDA, IOWA (LAT 40 44 19 LONG 095 00 47)					
OCT., 1970					
27...	1250	124	260	--	10.0
NOV.					
24...	1430	32	580	--	.0
DEC.					
22...	1220	40	450	--	.0
JAN., 1971					
27...	1310	27	550	--	.0
MAR.					
15...	1235	573	250	--	2.0
24...	1230	154	370	--	3.0
APR.					
22...	1400	156	400	--	12.5
MAY					
19...	1305	1320	290	--	16.0
JUNE					
23...	0905	79	420	--	23.5
JULY					
18...	1140	38	460	--	28.0
AUG.					
24...	1215	21	420	8.3	27.0
SEP.					
14...	0940	15	440	7.8	18.5
22...	1150	16	420	--	15.5
06817050 - E NODAWAY R NR WILLIAMSON, IOWA (LAT 41 06 LONG 094 33)					
SEP., 1971					
14...	1015	.02	370	7.5	17.5
06817100 - E NODAWAY R NR SHAMBAUGH, IOWA (LAT 40 38 LONG 095 01)					
AUG., 1971					
24...	0820	5.9	500	7.6	23.0
SEP.					
14...	1210	4.1	540	7.9	21.5
06817200 - NODAWAY R NR BRADDYVILLE, IOWA (LAT 40 37 LONG 095 01)					
AUG., 1971					
24...	0725	35	480	7.4	24.0
SEP.					
14...	1130	25	490	7.9	20.5
PLATTE RIVER BASIN					
06818600 - PLATTE R NR KENT, IOWA (LAT 40 57 LONG 094 29)					
AUG., 1971					
24...	1310	.90	810	7.6	28.0
06818650 - E PLATTE R NR KNOWLTON, IOWA (LAT 40 54 LONG 094 26)					
AUG., 1971					
24...	1240	.02	470	7.4	24.0
06818700 - PLATTE R NR KNOWLTON, IOWA (LAT 40 52 LONG 094 26)					
AUG., 1971					
24...	1205	1.5	610	7.5	24.0
06819100 - WB 102 R NR GRAVITY, IOWA (LAT 40 49 LONG 094 49)					
AUG., 1971					
24...	1130	.01	380	7.8	29.0
06819120 - WB 102 R BLW MB NR GRAVITY, IOWA (LAT 40 48 LONG 094 49)					
AUG., 1971					
24...	1055	.18	400	7.6	26.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
PLATTE RIVER BASIN--CONTINUED					
06819140 - WB 102 R NR NEW MARKET, IOWA (LAT 40 44 LONG 094 51)					
AUG., 1971 24...	1010	.34	480	7.4	24.5
06819150 - WF 102 R NR NEW MARKET, IOWA (LAT 40 43 LONG 094 51)					
AUG., 1971 24...	0930	.51	500	7.4	23.5
06819180 - EF 102 R NR BEDFORD, IOWA (LAT 40 44 LONG 094 39)					
AUG., 1971 24...	1005	.02	380	7.8	26.0
06819190 - EAST FORK 102 RIVER NR BEDFORD, IOWA (LAT 40 38 01 LONG 094 44 41)					
OCT., 1970 27...	1100	2.3	340	--	10.0
NOV. 24...	1140	4.4	460	--	.0
DEC. 22...	1110	9.1	450	--	.0
JAN., 1971 27...	1130	3.8	540	--	.0
MAR. 05...	1100	81	300	--	1.0
24...	1055	9.0	420	--	2.0
APR. 22...	1225	11	420	--	11.5
MAY 19...	1105	208	250	--	16.0
JUNE 23...	1140	.81	350	--	30.5
JULY 17...	1530	.42	400	--	38.0
AUG. 24...	0850	.55	520	7.6	23.0
SEP. 22...	1035	.35	650	--	14.5
06819195 - MF 102 R NR BEDFORD, IOWA (LAT 40 35 LONG 094 49)					
AUG., 1971 24...	0920	.14	380	7.5	23.5
GRAND RIVER BASIN					
06896100 - GRAND R AT KNOWLTON, IOWA (LAT 40 50 LONG 094 20)					
SEP., 1971 20...	1325	.10	325	8.6	15.0
06896150 - GRAND R NR BLOCKTON, IOWA (LAT 40 44 LONG 094 27)					
SEP., 1971 20...	1430	2.5	460	8.4	16.5
06896200 - EF GRAND R NR MT AYR, IOWA (LAT 40 43 LONG 094 10)					
SEP., 1971 20...	1200	.07	350	8.6	12.0
06896250 - EF GRAND R SOUTH OF MT AYR, IOWA (LAT 40 35 LONG 094 14)					
SEP., 1971 20...	1545	.05	275	8.4	15.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
GRAND RIVER BASIN--CONTINUED					
06897770 - THOMPSON R NR HEBRON, IOWA (LAT 41 14 LONG 094 16)					
SEP., 1971					
20...	1300	.31	1440	8.4	16.0
06897820 - THOMPSON R NR AFTON, IOWA (LAT 41 02 LONG 094 06)					
SEP., 1971					
21...	1100	.88	550	8.6	11.5
06897900 - THOMPSON R NR GRAND RIVER, IOWA (LAT 40 52 LONG 093 58)					
SEP., 1971					
20...	1520	2.4	540	8.3	20.5
06897940 - LONG CR NR VAN WERT, IOWA (LAT 40 49 LONG 093 52)					
SEP., 1971					
20...	1430	.05	500	8.5	21.0
06898300 - WELDON R EAST OF LEON, IOWA (LAT 40 45 18 LONG 093 38 05)					
SEP., 1971					
20...	1245	.22	460	8.6	20.0
06898450 - WELDON R NR PLEASANTON, IOWA (LAT 40 35 40 LONG 093 36 20)					
SEP., 1971					
21...	1020	1.3	400	8.6	13.0
06898470 - LITTLE R NR LEON, IOWA (LAT 40 39 36 LONG 093 44 59)					
SEP., 1971					
21...	0915	.02	555	8.6	12.0
CHARITON RIVER BASIN					
06903300 - CHARITON R NR DERBY, IOWA (LAT 40 57 LONG 093 28)					
AUG., 1971					
24...	1030	.06	380	7.7	24.0
06903350 - WOLF CR NR CHARITON, IOWA (LAT 40 56 LONG 093 16)					
AUG., 1971					
24...	0945	.02	400	7.5	23.0
06903600 - SF CHARITON R NR CAMBRIE, IOWA (LAT 40 49 LONG 093 23)					
AUG., 1971					
24...	1520	.02	444	7.6	26.0
06903650 - SF CHARITON R NR CORYDON, IOWA (LAT 40 49 LONG 093 19)					
AUG., 1971					
24...	1545	.10	440	8.0	30.0
06903700 - S FORK CHARITON R NEAR PROMISE CITY, IOWA (LAT 40 48 02 LONG 093 11 32)					
NOV., 1970					
03...	1410	38	540	7.3	7.5
DEC.					
08...	0845	14	590	7.4	.0
JAN., 1971					
19...	1205	5.8	560	7.4	.0
MAR.					
02...	0930	26	340	8.2	.0
APR.					
13...	1245	11	460	7.9	15.5
MAY					
19...	1355	419	--	--	12.0
26...	1505	54	370	7.8	16.0
AUG.					
17...	1350	.29	375	7.7	--
24...	1815	.48	440	7.6	26.5

DATE	TIME	DIS-CHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
CHARITON RIVER BASIN--CONTINUED					
06903900 - CHARITON R NR RATHBUN, IOWA (LAT 40 49 22 LONG 092 53 22)					
OCT., 1970					
01...	1300	8.2	725	8.0	19.0
13...	1230	1440	--	--	15.5
NOV.					
03...	1115	505	260	8.0	11.0
DEC.					
07...	1650	28	270	7.7	4.0
JAN., 1971					
19...	0930	31	350	7.7	.5
MAR.					
01...	1705	492	225	8.2	2.0
APR.					
13...	1000	14	--	--	8.5
MAY					
27...	0840	493	220	8.5	14.0
JULY					
06...	1630	9.9	--	--	17.0
06904150 - SHOAL CR NR CINCINNATI, IOWA (LAT 40 37 LONG 092 52)					
AUG., 1971					
24...	1945	.01	450	7.5	26.0

Water-quality records at supplemental low-flow stations

The following water quality data were obtained at supplemental low-flow stations in Iowa. Additional data pertaining to location, drainage area and discharge are published in Part 1, Supplemental low-flow measurements, of this report.

Water-quality measurements made at supplemental low-flow stations during water year 1971

Station Name	Date	Time	Specific Conductance (Micromhos)	Water Temperature (°C)	pH (units)
Boyer River basin					
Boyer River near Wall Lake, Iowa	8-17-71	0905	510	21.0	7.9
Boyer River at Brogan, Iowa	8-17-71	0940	550	20.0	7.7
Boyer River near Boyer, Iowa	8-17-71	1015	510	22.0	7.8
Boyer River above Otter Cr. at Deloit, Iowa	8-17-71	1110	580	25.0	8.0
Otter Creek at Deloit, Iowa	8-17-71	1155	560	26.5	8.1
Buffalo Creek near Denison, Iowa	8-17-71	1230	500	26.5	7.9
Paradise Creek at Dow City, Iowa	8-17-71	1055	660	20.5	7.9
Boyer River near Dow City, Iowa	8-17-71	1200	1,100	26.0	8.5
Mill Creek near Dunlap, Iowa	8-17-71	1300	520	24.0	8.2

Water-quality measurements made at supplemental low-flow stations during water year 1971--Continued.

Station Name	Date	Time	Specific Conductance (Micromhos)	Water Temperature (°C)	pH (units
Boyer River basin--Continued					
Boyer River near Dunlap, Iowa	8-17-71	1335	1,080	29.0	8.6
Picayune Creek near Woodbine, Iowa	8-17-71	0830	620	19.5	7.9
Boyer River at Woodbine, Iowa	8-17-71	0940	940	21.5	8.5
Sixmile Creek near Logan, Iowa	8-17-71	1015	710	21.0	7.7
Grand River basin					
Marvel Creek near Greenfield, Iowa	9-20-71	1120	2,700	12.0	8.1
Thompson River near Stanzel, Iowa	9-20-71	1150	2,700	15.5	8.1
Nine Mile Creek at Hebron, Iowa	9-20-71	1220	460	19.5	8.3
West Branch Creek near Macksburg, Iowa	9-20-71	1340	440	19.0	8.4
Thompson River near Lorimer, Iowa	9-20-71	1515	740	14.5	8.4
Three Mile Creek above Afton, Iowa	9-20-71	1550	610	16.5	8.4
Four Mile Creek near Thayer, Iowa	9-21-71	0830	1,020	11.0	8.6

Water-quality measurements made at supplemental low-flow stations during water year 1971--Continued.

Station Name	Date	Time	Specific Conductance (Micromhos)	Water Temperature (°C)	pH (units)
Grand River basin--Continued					
Twelve Mile Creek at Afton, Iowa	9-21-71	0915	410	9.5	8.7
Twelve Mile Creek near Hopeville, Iowa	9-21-71	0915	480	12.0	8.4
Thompson River near Hopeville, Iowa	9-21-71	0955	630	14.5	8.4
Thompson River near Decatur City, Iowa	9-20-71	1330	470	15.0	8.5
Jonathan Creek near Leon, Iowa	9-20-71	1245	350	20.0	8.4
Steel Creek near Garden Grove, Iowa	9-20-71	1620	430	24.0	8.6
Steel Creek near Lineville, Iowa	9-20-71	1450	470	20.0	8.5
Weldon River near Lineville, Iowa	9-20-71	1530	420	20.0	8.5
Caleb Creek near Clio, Iowa	9-21-71	1150	400	16.0	8.5
Caleb Creek near Lineville, Iowa	9-21-71	1055	440	--	8.5
Unnamed tributary below gaging station on Weldon River, Iowa	9-20-71	1340	650	19.0	8.4

Periodic determinations of suspended-sediment discharge

The Geological Survey collects suspended-sediment samples at several stream-gaging stations other than daily water-quality stations. These samples are collected monthly immediately following the discharge measurement at verticals in the stream cross section. Although these data may represent conditions only at the time of collection, a seasonal relationship between quality and streamflow can be established for long-term characteristics of the stream.

SUSPENDED-SEDIMENT ANALYSES, WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
TURKEY RIVER BASIN					
05411600 - TURKEY R AT SPILLVILLE, IOWA					
OCT. 07...	1145	15.0	60	78	13
NOV. 16...	1655	4.0	179	39	19
FEB. 08...	1320	.0	47	28	3.6
MAR. 16...	1330	--	801	540	1170
APR. 26...	1400	14.5	153	27	11
JUNE 07...	--	--	224	770	466
JULY 19...	1600	25.5	73	37	7.3
AUG. 30...	1425	21.0	37	8	.80
WAPSIPINICON RIVER BASIN					
05421000 - WAPSIPINICON R AT INDEPENDENCE, IOWA					
NOV. 16...	1415	3.0	1080	18	52
FEB. 11...	1050	.5	141	2	.80
MAR. 15...	1215	--	5610	108	1640
APR. 26...	0930	14.0	568	40	61
JUNE 07...	0935	15.5	648	82	143
JULY 19...	1030	24.0	272	86	63
AUG. 30...	1120	22.0	63	152	26
IOWA RIVER BASIN					
05449500 - IOWA RIVER NEAR ROWAN, IOWA					
DEC. 16...	1315	.0	79	141	30
JAN. 26...	1215	.5	24	45	2.9
MAR. 08...	0945	.0	144	25	9.7
31...	1010	4.0	2060	83	462
APR. 21...	1340	13.0	254	365	250
JUNE 04...	1210	26.5	127	97	33
11...	1120	20.0	928	69	173
JULY 13...	1335	24.5	156	291	123
AUG. 24...	1315	25.0	30	65	5.3

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
IOWA RIVER BASIN--CONTINUED					
05454000 - RAPID C NR IOWA CITY IOWA					
OCT. 12...	1100	13.5	14	71	2.7
DEC. 21...	1320	--	21	46	2.6
JAN. 26...	1600	.0	6.0	39	.60
FEB. 23...	1530	--	16	222	9.6
MAR. 23...	1000	3.5	8.1	52	1.1
APR. 20...	1330	23.5	7.5	68	1.4
JUNE 21...	1110	24.5	2.2	64	.40
JULY 20...	1100	20.0	1.5	111	.40
SEP. 23...	1130	13.0	.10	38	.01
05454300 - CLEAR CREEK NEAR CORALVILLE, IOWA					
OCT. 12...	1440	15.5	80	223	48
DEC. 21...	0730	--	91	216	53
JAN. 28...	1000	--	20	9	.50
FEB. 23...	1145	.5	30	200	16
MAR. 23...	1200	3.5	34	75	6.9
APR. 19...	1410	20.0	39	229	24
MAY 25...	1525	13.0	34	260	24
JUNE 21...	1315	26.0	16	683	30
JULY 21...	1040	22.0	13	115	4.0
SEP. 27...	1415	--	3.6	9	.09
05455010 - SOUTH BRANCH RALSTON CREEK AT IOWA CITY, IOWA					
DEC. 21...	1430	--	2.0	110	.60
JAN. 27...	1500	--	.27	193	.10
MAR. 23...	1550	3.5	.95	67	.20
APR. 21...	0800	15.5	.70	31	.06
JULY 20...	0945	18.0	.67	101	.20
SEP. 23...	0945	11.0	.06	55	.01
05455500 - ENGLISH R AT KALONA, IOWA					
OCT. 14...	0955	13.0	761	294	604
DEC. 21...	1140	--	389	87	91
JAN. 28...	1300	--	118	14	4.5
MAR. 22...	1125	4.5	257	158	110
APR. 20...	0845	20.0	167	113	51
MAY 26...	1300	--	320	280	242
SEP. 23...	1500	17.0	18	158	7.7

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
SKUNK RIVER BASIN					
05472500 - NORTH SKUNK RIVER NEAR SIGOURNEY, IOWA					
OCT.					
20...	1050	10.5	645	180	313
DEC.					
01...	1100	5.0	429	79	92
JAN.					
12...	1555	.0	210	14	7.9
MAR.					
04...	1350	.5	924	328	818
APR.					
05...	1000	5.0	253	116	79
MAY					
17...	1015	11.0	132	65	23
JUNE					
21...	0920	25.0	150	372	151
AUG.					
02...	0945	21.5	60	113	18
DES MOINES RIVER BASIN					
05483000 - EAST FORK HARDIN CREEK NEAR CHURDAN, IOWA					
OCT.					
23...	1410	--	.59	209	.30
DEC.					
03...	0915	5.0	3.8	371	3.8
JAN.					
13...	1140	--	.72	432	.80
FEB.					
25...	0820	.0	14	80	3.0
APR.					
05...	1400	8.0	7.0	111	2.1
MAY					
18...	1620	16.0	2.9	53	.40
JUNE					
30...	0825	22.0	1.3	11	.04
AUG.					
09...	1000	22.0	.07	20	.00
05483600 - MIDDLE RACCOON RIVER AT PANORA, IOWA					
OCT.					
22...	1020	12.5	22	423	25
28...	1210	10.0	13	169	5.9
DEC.					
02...	0940	--	7.4	62	1.2
JAN.					
14...	1325	--	7.5	117	2.4
FEB.					
24...	1000	2.0	1080	261	761
APR.					
06...	1330	9.0	40	43	4.6
MAY					
19...	1517	18.0	1020	91	251
JUNE					
29...	0945	26.0	81	55	12
AUG.					
10...	1335	24.0	20	67	3.6
SEP.					
21...	1245	20.0	20	42	2.3

BOYER RIVER BASIN

06609500 - BOYER RIVER AT LOGAN, IOWA

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
OCT.							
06...	1130	10.0	30	31	2.5	--	--
NOV.							
03...	1150	4.5	72	125	24	--	--
30...	1030	1.0	74	101	20	--	--
JAN.							
06...	1345	.0	15	73	3.0	--	--
FEB.							
05...	1250	.0	19	23	1.2	--	--
MAR.							
01...	1215	1.5	395	284	303	--	--
12...	1250	1.5	2880	4810	37400	27	33
APR.							
06...	1255	11.0	193	292	152	--	--
MAY							
05...	1100	15.5	126	46	16	--	--
JUNE							
03...	1105	22.0	107	140	40	--	--
JULY							
01...	0945	23.0	319	5680	4890	50	60
AUG.							
04...	1340	24.0	56	12	1.8	--	--
SEP.							
03...	1230	25.5	25	12	.80	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	METHOD OF ANALYSIS
OCT.						
06...	--	--	--	--	--	--
NOV.						
03...	--	--	--	--	--	--
30...	--	--	--	--	--	--
JAN.						
06...	--	--	--	--	--	--
FEB.						
05...	--	--	--	--	--	--
MAR.						
01...	--	--	--	--	--	--
12...	40	53	78	97	100	VPWC
APR.						
06...	--	--	--	--	--	--
MAY.						
05...	--	--	--	--	--	--
JUNE.						
03...	--	--	--	--	--	--
JULY.						
01	73	86	92	99	100	SPWC
AUG.						
04...	--	--	--	--	--	--
SEP.						
03...	--	--	--	--	--	--

C Chemically dispersed
P Pipet
S Sieve
V Visual accumulation tube
W In distilled water

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NISHNABOTNA RIVER BASIN					
06808500 - WEST NISHNABOTNA RIVER AT RANDOLPH, IOWA					
NOV. 23...	1410	.0	52	54	7.6
DEC. 22...	1250	.0	81	60	13
JAN. 25...	1430	.0	65	32	5.6
FEB. 26...	1310	1.5	563	594	903
MAR. 24...	1405	2.0	353	577	550
APR. 23...	1250	13.0	191	72	37
MAY 21...	1055	16.0	665	1460	2620
JUNE 25...	1100	27.0	223	146	88
AUG. 26...	1420	27.0	73	38	7.5
SEP. 23...	1200	16.0	51	4	.60
06809000 - DAVIDS CREEK NR HAMLIN, IOWA					
OCT. 06...	1205	18.0	.11	91	.03
NOV. 03...	1100	4.8	1.4	115	.40
DEC. 02...	1245	5.0	.76	145	.30
MAR. 04...	1340	.5	12	151	4.9
APR. 07...	1205	11.5	4.8	206	2.7
MAY 04...	1000	9.0	2.8	40	.30
JUNE 02...	1200	17.0	7.7	65	1.4
JULY 01...	1100	22.0	4.8	188	2.4
AUG. 03...	1845	22.5	2.3	95	.60
CHARITON RIVER BASIN					
06903700 - S FORK CHARITON R NEAR PROMISE CITY, IOWA					
JAN. 19...	1210	.0	5.8	112	1.8
MAR. 02...	0900	.0	26	210	15
APR. 13...	1250	15.5	11	17	.50
MAY 26...	1500	16.0	54	389	57
JULY 07...	0900	--	.38	96	.10
AUG. 17...	1400	28.0	.29	123	.10
06903900 - CHARITON R NR RATHBUN, IOWA					
JAN. 19...	1430	.5	31	23	1.9
MAR. 01...	1700	2.0	492	29	39
MAY 27...	0840	14.0	493	17	23

DISCONTINUED WATER-QUALITY STATIONS

The following water-quality stations have been discontinued in Iowa. Continuous daily records of water temperature or sediment were collected and published for the period of record shown for each station. An asterisk (*) in the type of record column indicates that periodic data is available for that parameter subsequent to the period of daily record.

Discontinued water-quality stations

Station name	Station number	Drainage area (sq mi)	Type of Record	Period of record
Paint Creek at Waterville, Iowa.	05388500	42.8	Temp. Sed.	1952-56 1952-57
Turkey River at Garber, Iowa.	05412500	1,545	Temp. * Sed. *	1957-62 1957-62
Wapsipinicon River at Independence, Iowa.	05421000	1,048	Chem. Temp. Sed.	1968-70 1967-70 1967-70
Iowa River near Rowan, Iowa.	05449500	429	Temp. * Sed. *	1957-62 1957-62
Cedar River at Cedar Rapids, Iowa.	05464500	6,640	Chem. Temp. Sed.	1906-07; 1944-54 1944-54 1943-54
Des Moines River at Des Moines, Iowa.	05482000	6,245	Chem. Temp. Sed.	1954-55 1954-61 1954-61
E. Fork Hardin Creek near Churdan, Iowa.	05483000	24.0	Temp. * Sed. *	------- 1952-57
Raccoon River at Des Moines, Iowa.	05485000	3,590	Chem. Temp.	1945-47 1945-47
Des Moines River below Raccoon River at Des Moines, Iowa.	05485500	9,770	Chem. Temp. Sed.	1944-47 1944-47 1944-47
Middle River near Indianola, Iowa.	05486490	503	Temp. Sed.	1962-67 1962-67
Little Sioux River at Correctionville, Iowa.	06606600	2,500	Chem. Temp. Sed.	1954-55 1951-62 1950-62
Little Sioux River near Kennebec, Iowa.	06606700	2,738	Temp. Sed.	1950-55 1950-57
Steer Creek near Magnolia, Iowa.	06609200	9.26	Temp. Sed.	1963-69 1963-69
Thompson Creek near Woodbine, Iowa.	06609590	6.97	Temp. Sed.	1963-69 1963-69
Mule Creek near Malvern, Iowa.	06808000	10.6	Temp. Sed.	1958-69 1958-69
Nishnabotna River above Hamburg, Iowa.	06810000	2,806	Chem. *	1969-70
Honey Creek near Russell, Iowa.	06903500	13.2	Sed.	1952-62
Chariton River near Rathbun, Iowa.	06903900	551	Temp. Sed.	1962-69 1962-69

Type of record: Chem. (chemical quality); Temp. (water temperature); Sed. (sediment).

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